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ONE SHILLING.

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HEAT-WAVE HABITS OF LONDON SOCIETY: TEA UNDER THE ELMS IN KENSINGTC. TO GARDENS.

During the heat way it was far more pleasant to take tea in the shade of the trees round the refreshment pavilion in Kensington Gardens than within doors in drawing-room or boudoir, however luxurious. The temperature was such, in fact, that one would

gladly have spent the whole day in such surroundings; and those were fortunate who possessed shady gardens of their own, with leisure to enjoy them. Some of the more adventurous would even sling a hammock at night, and sleep under the stars.

DRAWN BY STEVEN SPURRIER. (COPYRIGHTED IN THE UNITED STATES AND CANADA.)

#### MATTERS OF PREHISTORIC AND POST-WAR INTEREST.

(See Illustrations on pages 277, 286-287.)

#### THE FOSSIL ELEPHANT FROM CHATHAM, KENT.

EVERAL nearly complete skeletons of fossil S elephants had already been found in the clay and brick-earth of the old banks of rivers in the south of England, but until 1913 there had been no opportunity for recovering more than fragments of them. In that year, however, Mr. Sydney Turner, of Luton Chatham, reported to the British Museum that a fine skeleton had been exposed by the digging of a trench at Frindsbury, in the grounds of the Chatham School of Military Engineering; and as soon as the discovery had been confirmed, the Commandant of the School took every precaution to preserve the specimen until a dry season permitted its removal. The early summer of 1915 proved to be a favourable time, and the bones were then skilfully disinterred by Mr. L. E. Parsons, under the direction of Dr. C. W. Andrews, who afterwards sent them in a special barge to London.

The removal of such a fossil skeleton is by no means an easy task, for the bones have lost the animal matter which originally gave them consistency, and under the circumstances they are little more than a loose mosaic of chips. Each bone must be carefully uncovered separately, hardened with weak glue, and

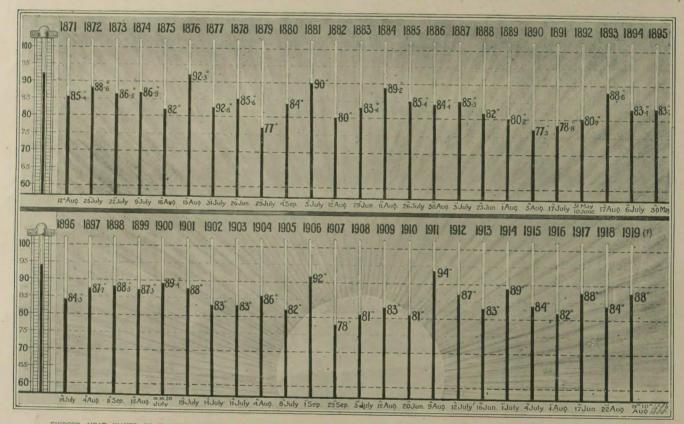
with the large bones there was a considerable part of a skeleton of a cave hyæna (an extinct kind of spotted hyæna), besides fragments of a wild boar and a stag. All these remains are now in the British Museum (Natural History) at South Kensington, and some of them are exhibited in the gallery of fossil

The Chatham skeleton is especially interesting because it is not of the ordinary northern elephant, or mammoth, but belongs to a much larger species, the so-called *Elephas antiquus*, whose true home was further south on the European continent, or perhaps even in northern India. At the epoch when it lived here, of course, Britain was still part of the mainland and the large quadrupeds had direct access to this country. Judging from the character of the teeth, the species seems to have been more closely related to the modern African elephant than to the species now living in India; but its skeleton is still imperfectly known, and the bones from Chatham, when studied, will probably furnish many new facts. The shape of the skull, as shown by examples found in Italy and Germany, suggests that the fleshy face at the base of the trunk (or proboscis) was unusually massive. The forehead must have been low and rounded, and

The implement, gravel-pit in the summer of 1914. which is represented as slung round the body in the figure, was certainly made from the thigh-bone of an elephant as large as the specimen from Chatham. Even if it was not made from this species, it must have been taken from one of the two partly contemporary species which almost equalled it in size. The elephants indeed, like many other warm-blooded animals in different parts of the world, attained their greatest dimensions just before man arose to interfere with nature while adapting the world for his own A. SMITH WOODWARD.

#### LOCATING UNEXPLODED SHELLS ON FRENCH BATTLE-FIELDS: THE GUITTON APPARATUS.

THE cultivation of ground that was fought over in the war is dangerous work owing to the number of unexploded projectiles buried in it, especially hand grenades near the surface, which detonate at the least shock. Many accidents have happened to agriculturists. M. Guitton, Professor of Physics at Nancy, recently invented an electrical magnetic apparatus by means of which it is possible to locate the presence of metal substances in the soil, which can be then carefully



FIERCER HEAT WAVES IN SUMMERS GONE: A CHART SHOWING THE HOTTEST DAY IN EACH OF THE YEARS SINCE 1871, AS RECORDED AT KEW

The above chart shows that up to August 15, at any rate, the present year doss not hold the record for high temperature. That distinction belongs to August 1911. The Weather Report of the Meteorological Office for that month stated that: "The heat of the month was without precedent in the records of the country. Maximum temperatures well above 80 dag, were registered in Scotland and Ireland;
London; 93 deg, at Canterbury, Epsam, and Raunds; 99 dag, and upwards, the hoitest day being the 9th, when the thermometer reached 97 deg, at Hillington, Wokingham, and in various parts of
of regular meteorological observations in 1841. Many night minima were above 65 dag,—as high as 71 dag, at Llandudno, and 72 dag, at Lancaster on the morning of the 13th. As a result, the mean
temperature of the whole month was exceptionally high."—|Drawn by W. B. Robinson, from information kintly supplied by the Meteorological Office, South Kensington.]

bandaged with narrow strips of sacking soaked in a solution of glue and plaster. Before being lifted, indeed, the bone has rather the appearance of a limb in surgical bandages. On arrival at the geologist's workshop, each piece must be moistened and slowly unwrapped with equal care, every portion being hardened again as soon as it is exposed, and all the small cracks in the bony mosaic being filled with a paste of fine sand and glue. The specimen is permanently preserved in this way and then ready to be handled.

The Chatham skeleton was lying in stiff clay the foot of a low chalk cliff which formed the bank of the Medway at a remote period before the river had cut so deep a valley as that through which it now It evidently represented a carcase which had floated in the stream and had been stranded in a muddy backwater at the spot where it was found. Nearly all the essential bones of the skeleton were recovered, with the grinding teeth and one of the tusks in an ex-cellent state of preservation. The skull alone was completely destroyed, having been crushed in the clay into a thin layer of small fragments. Mingled

the width at the sockets for the tusks was considerable The tusk in the Chatham skeleton is very thick, and must have projected eight or nine feet beyond its It is only gently curved, and so differs greatly from the usual spirally twisted tusk of the mammoth The grinding teeth are much smaller than in the other known elephants. The ears, it seems, were probably smaller than in the African elephant. The fore-quarters are remarkably large, and the animal must have stood about fifteen feet at the shoulder, or between three and four feet taller than the largest existing elephants. Remains of even larger examples of the same species have been found on the European continent, and it may probably be regarded as the most bulky land quadruped that ever existed.

In our illustration Mr. Forestier has attempted portray the Chatham elephant in its natural surroundings, with the hyæna, stag, and wild boar in the same scene. He has also added a figure of Piltdown man to emphasise the fact that the human race was already in Britain at the time. This is proved by the remarkable bone implement which the late Mr. Charles Dawson and I unearthed in the Piltdown

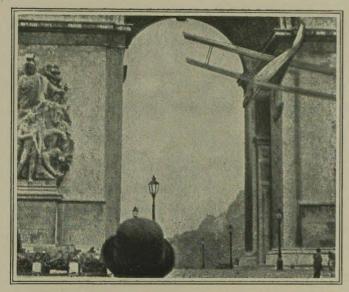
removed. Diagrams illustrating the instrument and its use are given on another page in this Number.

It is well known to electricians that if a periodically interrupted or variable current of electricity is passed through a conducting wire fashioned as a coil or ring, it will induce or cause the flow of a corresponding current in a secondary coil arranged parallel with the first or primary coil; and it is also known that, if a disturbing influence, such as a mass of iron, be brought into the vicinity of the coils, the strength of the current flowing in the primary coil will be changed, and that the current induced in the secondary coil will be correspondingly affected. If now two sets of such coils be arranged with the secondary coils connected in one circuit, but producing in the secondaries currents flowing in opposite directions opposed to one another, and if these currents are equal or balanced, there will be no flow in the secondary coils, and if this balance be disturbed a current will flow in the direction of the stronger.

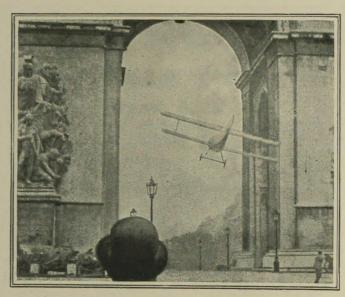
It is broadly upon such an arrangement that Hughes balance is constructed, and Professor Guitton taking advantage of this knowledge, has devised a detector to locate buried projectiles.

## "THREADING" THE ARC DE TRIOMPHE: A SENSATIONAL FLYING FEAT.

PHOTOGRAPHS FROM PATHE-JOURNAL CINEMATOGRAPH FILMS.



M. GODEFROY FLYING THROUGH THE ARC DE TRIOMPHE : SEEN FROM BEHIND.



WITH HIS LEFT WING TILTED BY AN EDDY: ANOTHER VIEW.



CLOSE ABOVE A TRAM: APPROACHING AT A HEIGHT OF 20 FT.



FILMED FROM THE HOTEL ASTORIA: THE MACHINE JUST THROUGH.



COMING THROUGH THE ARCH: A FRONT VIEW OF THE NIEUPORT MACHINE.

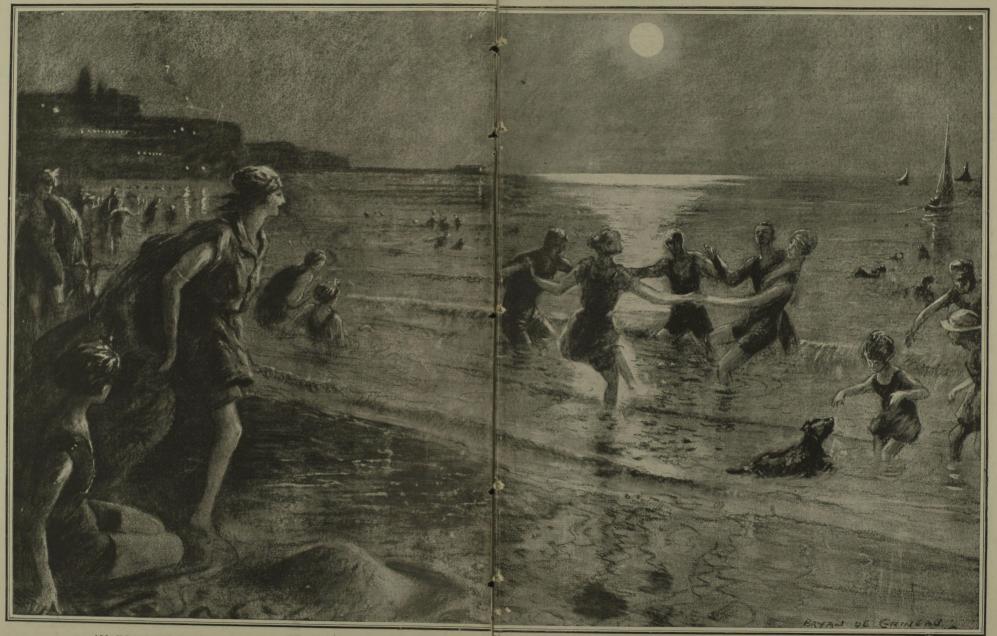
One of the most sensational feats in the records of aviation was performed in Paris at 7.30 a.m. on August 7 by a young French pilot, M. Charles Godefroy, who had been demobilised from the French air service two days before. Flying a Bébé Nieuport machine, he approached the Arc de Triomphe from the west, up the Avenue de la Grande Armée, and passed beneath the arch at a speed of about ninety miles an hour. The width of the aperture being only about 43 ft., and the span of the aeroplane from wing to wing about 22 ft., there was a margin of little more than 10 ft. on either side of the



RISING RAPIDLY AFTER "THREADING" THE ARCH: ANOTHER FRONT VIEW. machine. A collision would have meant instant disaster. The difficulty of the achievement was increased by the fact that the arch forms the converging point of a dozen or so radiating avenues, and is thus the centre of various eddies and air currents. As the illustrations show, one such eddy tilted the left wing of the machine just as it was entering the archway. The feat is regarded as a triumph for the aviation service, whose representatives had to pass through on foot in the Victory march of July 14. The famous aviator, M. Navarre, was recently killed while training for a similar attempt,

A DIP BY THE LIGHT OF THE SILVERY MOON: MIDNIGHT MIXED BATHING ON THE SOUTH COAST.

DRAWN BY BRYAN DE GRINEAU.



AN INNOVATION VERY POPULAR DURING THE RECENT HEAT WAVE: FAMILY FROLICS ON THE SANDS BY MOONLIGHT AT RAMSGATE.

Owing to the fact that the moon shone brightly all through the recent heat-wave, family parties for mixed bathing and impromptu frolics on the sands at midnight this form of amusement, midnight bathing being considered "improper" on the other side of the Channel.—[Descring Copyrighte in the United States and Consider.]



By G. K. CHESTERTON.

T is a solid and solemn fact that I have just read the following words in a publisher's advertisement of a historical novel by a well-known writer of romance: "The scene is laid in Alsace and Lorraine and in Paris during that fascinating period when Louis the Magnificent reigned, when Turenne was the Marshal Foch of the age, and English troops under Churchill were fighting side by side with the French against German and Austrian hordes, for history in the twentieth century was anticipated in the seventeenth." It is needless to say that we have here a principle that would carry us far. The writer might well go on to say that those two famous brothers-in-arms, Napoleon and Wellington, utterly defeated the Belgians outside Brussels. He might add that William the Conqueror, hand in hand with his inseparable friend Harold, had marched against Gurth up the hill of Battle: and there seems no particular reason why he should not throw in, as further historical information, allusions to the alliance between Charles I. and Oliver Cromwell against Ircton, of Scipio and Hannibal against the Consul Nero, or of St. George and the Dragon against the Princess. All these things enrich and enlarge our historical range; and they are really far less remarkable than the case I have quoted. In a word, I refuse to believe that anybody requires to be told that, in that fascinating period, English troops under Churchill were fighting against the French and not for them, and for the Austrian hordes and not against them. I have not read the historical novel that is thus advertised; but I will believe that this declaration is due to the advertiser and not to the novelist. I cannot bring myself to credit so superb a curiosity of literature as a man writing a whole book about Eugene and Marlborough without ever finding out that they were allies and not enemies.

It is probably altogether the responsibility of the publisher, and not of the author. But the act of a publisher is meant to be public; and what is meant to be public; and what is meant to be public is assumed to be acceptable. And the assumption that this version of the seventeenth century would be generally accepted may really cause reflection of a somewhat remarkable kind.

I do not mean merely that it throws a weird light on the way in which history is taught-or rather, not taught. It is, indeed, a startling educational exposure, that it is any more possible to print such a thing than to print a statement that fishes have feathers or elephants five legs. It is clear that the whole course and curve of English history must be utterly absent from the mind, or represented by certain random and disconnected dots and lines. But I am here concerned with the motive rather than the method, even if it was an unconscious motive. For it is a thing which unconsciously aims at unconsciousnessthat is to say, at forgetfulness. It is a spirit which is not only ignorant of history, but really ignores history. It lives in the present and dreads the past; because the past may be either better or worse than the present. If it is worse, it may reproach us with our crimes; and if it is better, with our fall:

Fortunately, history never does repeat itself If it did, all our own blunders and

brutalities would ceaselessly repeat themselves. The one element of truth in the rather priggish notion commonly called progress is that we have at least a chance of not making exactly the same mistake



WAR-MEMORIAL ART ABROAD: THE BELGIAN CENOTAPH IN MEMORY OF FALLEN SOLDIERS. \*\*NSCRIBED "A NOS MORTS."—[General Art and Pholographia Agency.]

twice over. History does not repeat itself: in that sense it is truer to say that history reforms itself. At the best, it may justly be said that history repents of itself. When it will not do so, it does not merely repeat its mistake; but rather rushes



WAR-MEMORIAL ART AT HOME: A MODEL OF A MONUMENT FOR PLYMOUTH HOE, DESIGNED BY MR. W. G. STORR-BARBER.

Mr. W. G. Storr-Barber, of Leominster, a well-known sculptor, who served in the war as a private in the Royal Marines, was commissioned by them recently to design this memorial, to be erected on Plymouth Hoe. Another war memorial by him was recently unveiled at Almeley, Herefordshire, by Major-General Sir Elliott Wood.

on the ruin that is the result of its mistake. And there could not be a stronger example than this one of the great English mistake of supporting Germany. If we had gone on being Pro-German for another year or two, we should simply have perished. Prussia would simply have destroyed Europe with our assistance; and then destroyed England in spite of our mild remonstrances. Hence it is vital to insist that, in the Great War, we were not right because we had always been right. On the contrary, we were right because we had generally been wrong. It is very essential that in this matter the Englishman should be right like the Publican; and not merely consistent, like the Pharisee. We are responsible for having supported the Prussian power through long and determining periods, when it might have been destroyed to the general purification of Europe; and the fact ought not to be hidden in history or literature. Few would attempt to hide it in the crude fashion of the literary advertisement I have quoted. But it is hardly any more stupid to say that we invariably defied the Germans than to say that we were invariably right even when we defended the Germans. We might just as well pretend that we were always on the side of France as pretend that we were always on the side of freedom. It is to boast of an impossible infallibility—a sinlessness that never belonged to man, and certainly never belonged to us. We have had the very great glory not of repeating our actions, but of repenting of our actions. We have been found ready on the right side at the supreme moment of all history, and in the largest question that ever divided mankind. England has had a real and even a rare good fortune-she has been right at the right time. Englishmen must take along with that advan-

tage the disadvantages logically involved in it. They cannot say they were right at the right time without admitting that they were wrong at many other times; nor can they claim to have realised the truth swiftly and also to have known it all along.

A new principle needs to be introduced not only into this, but into many other political questions. I might call it the principle of historical repentance. For many will be startled by the idea of repentance who have a mild approval of reform, or yet milder approval of revolution. But in many most important matters our whole truth ought to be based on our own errors. It was a good policy to give the Irish their land, because it had been a bad policy to take away their land. It would be a good policy to distribute property among the mass of citizens, because it was a bad policy to allow the concentration of property in the hands of a few capitalists. It would be a good policy to revive agricultural England, because it was an exceedingly bad policy to pin all our hopes on industrial England. But we must be clear about whether we do regard Prussianism and coercion and capitalism as mistakes; and not mix it up with any muddled vanity in having made no mistakes. Otherwise, we should drift with the Teutons into preferring legends to history, and then lies to legends; and, perhaps, reach a stage in which we can really believe that Marlborough fought in the service of Louis the

#### MEN OF THE MOMENT: NOTABILITIES IN THE NEWS.

PHOTOGRAPHS BY RUSSELL, LAPAYETTE, BASSANO, SWAINE, MAULL AND FOX, STANLEY, AND ELLIOTT AND FRY.



#### AN ECHO OF THE N.W. FRONTIER FIGHTING: A FORT CAPTURED.

PHOTOGRAPHS SUPPLIED BY L.N.A. AND TOPICAL.



- 1. AFTER ITS CAPTURE: THE AFGHAN FORT AT BALDAK.
- 3. SHOWING BALDAK FORT ON A RIDGE IN THE BACKGROUND: MEN OF THE DUKE OF WELLINGTON'S (WEST RIDING) REGIMENT IN THE ATTACK.
- 4. WHERE AFGHAN SNIPERS LURKED: THE AFGHAN GENERAL'S QUARTERS.

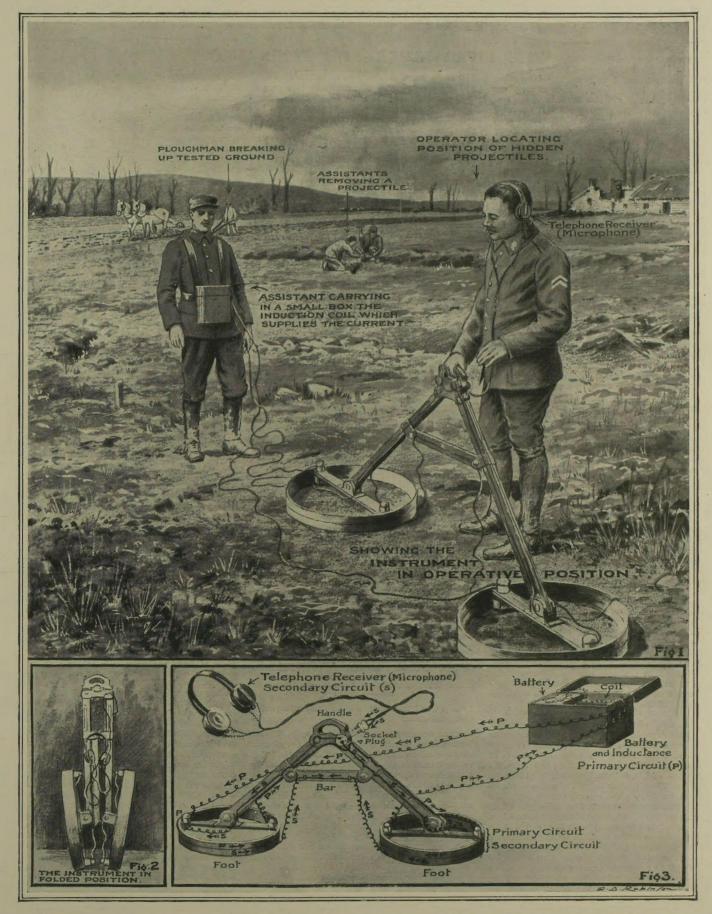
Peace with Afghanistan was signed at Rawal Pindi on August 8, but before the successful conclusion of the campaign there was some hard fighting. Our photographs illustrate the capture of the Afghan fort at Baldak by a force of British and Indian troops of the Baluchistan Field Force on May 27. The left-hand photograph of the two at the foot of

- 2. DAMAGED BY OUR SHELLS: BALDAK FORT-THE OUTER WALL.
- 5. BLINDFOLDED AND GUARDED BY INDIANS: AN AFGHAN MESSENGER.

the page shows the Afghan General's quarters over the gate in the second wall of the Baldak defences. The attacking troops were held up for a time by a few determined snipers posted at a window on the far side of the room seen on the right. All the snipers were eventually killed by flanking fire from a Lewis gun.

#### PERIL IN TILLING BATTLEFIELDS: LOCATING UNEXPLODED MISSILES.

DRAWN BY W. B. ROBINSON, BY COURTESY OF THE "SCIENTIFIC AMERICAN."



WHERE THE PLOUGH MAY DETONATE A BURIED BOMB: LOCATING UNEXPLODED PROJECTILES IN OLD BATTLEFIELDS.

Many accidents having happened to farmers cultivating the old battlefields of France, M. Guitton, Professor of Physics at Nancy, devised an electro-magnetic apparatus to locate the presence in the soil of metallic substances, which are then carefully removed. Our illustrations are based on an illustrated article in the "Scientific American," which, describing his instrument, says: "It is based upon the principle of the Hughes induction balance, invented to study the molecular structure of metals and alloys, and also used

by surgeons in the location of fragments of shot, previous to operation. The 'Alpha' machine of Professor Guitton comprises two large wooden rings, upon each of which are mounted two coils of wire, one traversed by a variable current, the other in circuit with a telephone, . . . If there is no metallic object to introduce perturbations, the instrument remains silent. When it approaches metal, the telephone gives off sound." An article with further explanation appears elsewhere.



#### THE LIVER-FLUKE AND POND-SNAILS.

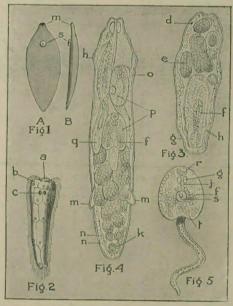
THE Liver-fluke is shown of its natural size in our drawing, Fig. 1. Its occurrence in sheep was first described in 1547: it causes a diseased condition in them which is called "sheep-rot." It has rarely been found in man: only twenty-eight cases are recorded. but all over the world it is a serious pest in sheep and oxen. In 1879 300,000 sheep were killed by it in England alone, and in 1891 one owner lost 10,000 in this way. It inhabits the bile-ducts and, when numerous, causes atrophy of the liver by blocking its passages, and death results. It does not feed on the bile, but on the blood of its victim. Necessarily it became a matter of great importance to find out how the sheep become infected by this parasite, and, owing to the vast increase of our knowledge of parasites generally during the last century, many attempts were made to discover the life history of the Liverfluke, but it was not until 1883 that this was accomplished by Mr. A. P. Thomas, a young student at Oxford, who anticipated the final work of the great parasitologist, Professor Leuckart, of Leipzig, who had long been busy in the quest. Mr. Thomas, as will be en, rendered it possible by his discovery to protect sheep all over the world from this destructive disease.

The Liver-fluke is one of a numerous group of parasites-but little known a hundred years agowhich have a smooth, flat, oval body-varying in from a sixth of an inch to more than an inch in lengthat one end of which is a sucker-like mouth (Fig. 1 m) whilst one or more merely adhesive suckers (Fig. 1, s) are present on other parts of the body—varying in number and position according to the different kinds or classificatory groups. Other minute openings for the renal organs and for the egg-ducts and sperm-ducts are also present, but the large bifid gut, sometimes tree-like and branched, has no posterior opening. Rudolphi, in 1808, gave the name Trematoda—meaning "pierced with holes" (Greek: τρηματωθης), to the whole class comprising these worms, distinguishing them from the parasitic "Tape-worms" and "Thread-worms."

It became known in the middle of last century that many parasitic worms have two "hosts" or animals which they infest in turn—one during their young condition, which is called the "primary host," and the other the "final host," into which they pass in order to finish their growth, become mature and lay their eggs. The parasites usually pass from the first to the second host readily enough owing to the fact that the final host habitually preys upon the primary one—and so swallows the young parasite with its hospitable entertainer. But sometimes the parasite transfers itself by its own activity and locomotion from the earlier host to the later. Also very noteworthy facts are that only some one species of animal, or its close allies, is possible as intermediate host, and that there is usually also but a limited choice as to the second or final host—it must be one of some two or three particular species of animals which are in close relation to the earlier host.

In many cases the young stage of the parasite which hatches from the egg of the adult can swim or crawl, and so get into the primary or inter-mediate host. But in the common tape-worm of man, called *Tænia solium*, it does not leave the egg-shell until it, and usually a whole lot of the eggs, contained in a joint or segment of a tape-worm, are swallowed by a pig—its usual primary host. The minute creature which issues from each egg is a little globe (1-200th of an inch across) armed with six hooks. By aid of these it bores into the blood-vessels of the pig's intestine and so is carried by the blood-stream into the muscles (flesh), where it is stopped by the narrowness of the fine blood-vessels. Here it (or rather "they," for usually there are some hundreds together) grows and becomes a little bladder as large as a big pea, and a curious little head consisting of a circular crown of many hooks and four suckers makes its appear ance as an inward growth of each bladder. Pork infected with these little bladders is called "measled," and the bladders are called the "cysticercus" or "hydatid phase" of the tape-worm. If eaten uncooked by a man (as happens where "raw meat" is a popular dish), the bladders are destroyed by mastication, but one or more of the little heads survive and adhere to the

wall of the man's intestine by means of their suckers and crown of hooks. The adventurous young tape worm has now fixed itself in its final host. It grows rapidly - absorbing the nutritive juices around it without the use of any mouth or digestive canal. gives rise to a long, tape-like growth which consists of segments or joints continually produced by the fixed "head." Those nearest the head are narrow and minute, but increase in size as they are pushed forward by the growth of new ones behind them. string or "tape" becomes as much as ten feet becomes as much as ten feet long. and consists of 850 joints or segments of which the older - those furthest from the so-called "head" are three quarters of an inch long and a third of an inch bread. The oldest 400 joints are full of eggs, and those at the free end continually break off and pass out of the intestine, each filled with many hundreds of eggs already so far advanced in development as to contain six-hooked embryos ready to be swallowed



THE LIFE-HISTORY OF THE LIVER-FLUKE.

THE LIFE-HISTORY OF THE LIVER-FLUKE.

[Fig. 1,—Drawing of the animal of the natural size: (A) Seen from below;
(B) seen laterally; (m) mouth and oral sucker: (a) posterior sucker

Fig. 2,—Colliated young or "miracidium" hatched in fresh water from

the egg of the Liver-Fluke: (a) mouth: (b) collar; (c) eyes, Fig. 3,—

Sporceyst stage of growth from interior of Lymnaeus truncatulus:
(d) eyes degenerating; (e) an internal bud, or embryo; (f) gut; (g) pharynx'
(h) collar of young Redia within the sporceyst. Fig. 4,—A fully formed

Redia extruded from sporceyst: (t and h) as in Fig. 3: (k) germs:

(m) lappets; (n) germ-cells; (o) birth opening; (p) young Cercariae in

Redia; (d) daughter Redia in Redia, Fig. 5,—The tadpole phase, or

Cercaria; (f) gut; (g) pharynx: (r) circum-oral sucker: (s) posterior

sucker: (t) granul.s

by a pig, and to recommence the story with which we started above.

There are many variations of this story in different kinds of tape-worms. There is a minute tape-worm only a quarter of an inch long, which lives in a dog or a wolf as its final host. The bladder stage (hydatid or cysticercus phase), which develops from this tape-worm's eggs, occurs in man and herbivorous animals. A single cyst, or bladder, thus developed grows to an enormous size—as big as a cocoa-nut—fixing itself, when quite minute, in the liver or lung of its primary host. Not one (as in cysts of measled pork) but many hundred "heads" consisting of a crown of hooks and four suckers are budded off within the cyst and float there until it bursts and the victim dies. Then there is a chance that a dog or a wolf will lick up some of the liquid containing the floating heads, each capable of growing in the dog's or wolf's intestine into a ripe, egg-bearing little tape -worm. The "staggers" in sheep is produced by the cystic or hydatid phase of another tape-worm, which develops in the sheep's brain, whilst the tape worm matures in the sheep-dog—its final host. The list of tape-worms and their hosts could be greatly extended and would include a variety of birds, reptiles, and fishes as well as simpler invertebrate creatures. A very striking feature is the

enormous abundance either of the eggs produced in the final stage, or if not of them, then of the individual heads budded from a cyst in the primary host. It is clear that the chances of any individual worm born of an egg getting through his allotted course of life—reaching in due order, first the correct primary host and then, by the misfortune of that primary host in being eaten, the correct final host—are very small. And so the number of individuals produced and entering on the venture has to be enormous. Thousands, even hundreds of thousands, must start, in order that one or two may come tri-umphantly through to the final adult stage and reproduce themselves by eggs and sperm.

And now we return to the liver-fluke. the Trematoda, to which group the flukes belong, are external parasites and cling with their suckers on to the gills of fishes. Others have only one host and venture as parasites only into the cavities of some aquatic animals, without presenting any striking peculiarities except in their elaborate suckers. The flukes, on the other hand—properly so-called—have the mouth sucker and usually a second as in the liverfluke (Fig. 1). The young hatched from the eggs of the adult, very unlike their parent, pass into a primary host-usually a mollusc-in which they multiply abundantly, producing strange forms, some of the offspring of which eventually get to the final host, usually a vertebrate, and, becoming adult, lay eggs.

In the case of the liver-fluke-Distoma hepaticathe final host is the sheep—sometimes oxen and rarely man. The question has been (but now is solved) what is the intermediate host and what is the history of the young fluke in connection with it? It has been long known that sheep in marshy pasture-land liable to be flooded often become infected, and when, some fifty years ago, the history of some species of flukes which infest birds as their final host was traced to snails as primary hosts, it seemed likely that some kind of water-snail would prove to be the primary host of the liver-fluke of the sheep. The common pond-snails—Lymnæus and Planorbis, of which I lately wrote here-were known to be attacked by the young hatched from the eggs of certain flukes (as many as eight kinds) which attain their adult condition in birds and other vertebrates. They hatch in fresh water when the fluke's eggs are passed from the birds, as minute, very active swimming creatures about the fiftieth of an inch long. These young swim about by means of a clothing of vibratile hairs and have a pair of eye-spots (Fig. 2, c.). This young stage is called a miracidium. The ciliated miracidia of some kinds of flukes when they happen to swim into the neighbourhood of an ordinary pond-snail (Lymnæus stagnalis) seem to be drawn to it by a chemical attraction (smell or taste) and make their way into its soft body. Here they undergo a change of shape and increase in size, losing their coat of motile hairs. They produce young by internal budding (Fig. 3.), which may in their turn multiply by internal budding and sooner or later produce a great number of curiously shaped worms, which are called "King's vellow worms" on account of their colour, or "Redia"—after the old Italian naturalist Redi, who described them but did not know their history. The Redia with its curious pair of lappets marked m. m. is shown in Fig. 4. The earlier forms are called "sporocysts." The Redia produces other Rediæ by internal budding, but also produces other Actual by internal bactering, but also very soon, and as a final step before breaking up, it produces within itself a number of minute tadpole-like creatures which are called Cercaria. These escape from the snail and swim about in the water, lashing their tails (Fig. 5.). The Cercaria is seen on examination to be nothing more than a minute fluke with circum-oral sucker (Fig. 5, n.), and a large hinder sucker (Fig. 5, s.), though it is peculiar in possessing a lashing, active tail like that of a tadpole. The Cercaria, in one way or another (not fully made out in every case), manages to get swallowed by the bird which is its final host. Often the whole snail, with its stock of completed *Cercariæ*, within it, is swallowed by the bird. Once inside the bird's stomach the Cercaria loses its tail and slowly grows to be an adult fluke. It was not until the particular kind of pond-snail requisite for these stages of development in the case of the liver-fluke was discovered that the whole [Continued on page 290.

# LIFE IN DEAD PLACES: TWO FAMOUS FRENCH WAR TOWNS TO-DAY.



UNDER THE REMAINS OF THE FAMOUS BELFRY: AN OPEN-AIR MARKET IN THE PETITE PLACE AT ARRAS.



WHERE NOT A SINGLE BUILDING STANDS: MARKETING AMID THE RUINS AND SHELL-HOLES OF LENS.

The devastated regions in the battle-areas of France are being reconstructed little by little, but the work is as yet of a purely local character. At Arras, in the Petite Place, under the ruins of the famous beliry and the Town Hall, a market has sprung up for the sale of the necessities of life to the inhabitants who have returned to the ruins of their old

homes. In the same way at Lens, where not a single wall has been left standing, an open-air market has been established in the only available spot, the middle of the road, flanked by all the débris of war. In the foreground is a stack of iron posts and old barbed-wire entanglements.

# CASTLES FROM THE AIR: OLD CHÂTEAUX OF TOURAINE

PHOTOGRAPHS (TAKEN FROM



WHERE RICHARD COEUR DE LION SIGNED A TREATY: THE CHÂTEAU DE VILLANDRY, RE-BUILT ABOUT 1532.



WHERE THE MARRIAGE OF CHARLES VIII. AND ANNE OF BRITTANY TOOK PLACE IN  $_{1491}$ : THE CHÂTEAU DE LANGEAIS.



ON THE SITE OF AN ANCIENT STRONGHOLD COUNT OF ANJOU:



WHERE TALLEYRAND (ITS OWNER) DIED AND THE CHÂTEAU

The Château de Villandry, about ten miles from Tours, belonged to an ancient seigniory originally called Coulombières. Richard Coeur de Lion signed a treaty there with Philippe Auguste in 1189. The château was re-built about 1532 by Jean Le Breton, Secretary of State of François I. Considerable alterations were made in the eighteenth century by the Marquis de Castellane.—The first Château de Luynes, about six miles from Tours, was destroyed at the end of the eleventh century by the Count of Anjou, and was re-built about 1106 by Hardouin de Marilé. This second fortress gave place in the fifteenth century to the present building, which, in turn, was enlarged about 1650 by the architect Le Muet.—The Château of Presigny-le-Grand stands in the village of that name some twenty miles from Loches. The donjon, or keep, dates from the eleventh century.—The first Château de Langeais (a town known in the fifth century by the Roman name of Alangavia) was built in 990 by Foulques Nerra, Count of Anjou. It was re-built about the year 1450 by Jean Bourré, Minister of Louis XI. There the

# SEEN FROM A NEW ANGLE-BY AERIAL PHOTOGRAPHY.

AEROPLANES) SUPPLIED BY TOPICAL.



DESTROYED IN THE ELEVENTH CENTURY BY THE THE CHÂTEAU DE LUYNES,



FERDINAND VII. OF SPAIN LIVED IN EXILE:
DE VALENÇAY.



WITH A KEEP DATING FROM THE ELEVENTH CENTURY: THE CHÂTEAU

OF PRESSIGNY-LE-GRAND, INDRE ET LOIRE.



WHERE LOUIS XII. WAS BORN AND THE DUC DE GUISE WAS ASSASSINATED:
THE HISTORIC CHÂTEAU DE BLOIS.

Customs of Touraine were drawn up by order of Charles VIII. and his marriage with Anne of Brittany took place on December 16, 1491. Rabelais lived at a house near the entrance. The castle was restored and appropriately furnished in recent years by its owner, M. Jacques Siegfried, who presented it to the Institut de France.—The Château de Valençay, a magnificent Renaissance building begun in 1540, was bought in 1805 by Talleyrand, who seldom lived in it, but died there in 1838. His tomb is in a neighbouring convent chapel. From 1808 to 1814 he lent it as a place of exile for Ferdinand VII. of Spain, whom Napoleon dethroned.—The famous Château de Blois was closely associated with great events in French history for many centuries. A Comte de Blois, Stephen, became King of England in 1135. In 1462 Louis XII. of France was born there. When King, he preferred it as a residence to Paris. Anne of Brittany died there in 1514. On December 23, 1588, the Duc de Guise was murdered in the castle by order of Henri III. Louis XVI. converted it into barracks, but it was restored in 1841.



By E. B. OSBORN.

EVERY woman in the world is either or Lilith." I heard - or rather, overheard - Walter Pater utter these words in the days of my youth, when he was one

of my literary heroes; and they come back to m from behind the blue hills of time in a breath chills as the mistral, a breeze of disillusionment-for they suddenly revealed to me his strange ignorance of human nature, and so were the beginning of the end of a phase of hero-worshipping. Even then I knew that the souls of women cannot be anatomised by any edged tools of rhetoric; that both Eve and Lilith are subtly compounded together in the best and in the worst of them; and that in the fateful, almost fatal, lady whom I then adored, fashioning for her pleasure small trinkets of well-turned verse such as

> A many folk each day renau To where Sibvila sits Dispensing lovers dark or fair And living on her wits I, though I be not wary wise Pay not for particoloured lie , day by day (As for his morning cate Her dachshund) so I take my way To learn my daily fate And, having earned it, home again I bear my lot of joy or pan For, haply with a frowning face Or happily, with a smile She glances at me from her place I gaze on her the while. And still her brow's the Horoscop-That bids me fear or dares me hope And when I look into her eyes That are so darkly bright I see myself in wondrous wise A small and puny wight As in a Bervl there I see Myself the toy of Destmy Vestreen she plucked a rose (the Sui. Had slain it by mishap id shred the petals one by on-And cast them in her lap As fall the Tarot cards, so fel-Lach rose-page of the oracle

that, in this most fateful of ladies I have ever

known-a deadly danger to all young men, according

MEDIAEVAL STAINED CLASS PRESENTED TO THE VICTORIA AND ALBERT MUSEUM BY MR. J. PIERPONT MORGAN: A THIRTEENTH-CENTURY PANEL

This panel, showing a crowned lady in a green robe, is of doubtful origin. It may have come from a Cistercian Abbey in Bayaria. The inscription, "Domina Agnes Uxor Sua" (Lady Agnes, his wife), probably refers to the wife of Duke Otto 11 Protograph by courtesy of Mr. Kachham, of the Ceramic Section in

to the dowagers watching over Ethels and Ediths in white mushin, with whiter voices-there was really far more Eve than Lilth. Indeed, it was manifestly so a few years later, when she ceased to take pupils in the super-Nietzschean art of loving dangerously-as you would at once admit, were I to fill up the blank in the second stanza of my copy-cat compliment.

Every master-novelist must attempt the "fatal" woman, and Mr. Conrad does so in "THE ARROW OF GOLD" (Fisher Unwin; 8s. net) with as much success as may be expected of the writer who appeals to an English public. His Doña Rita moves mysteriously

among the actions and reactions of the last Pretender's adventure for a Crown-in the years and places that saw Don Carlos de Bourbon, encouraged by the general counterrevolution against communistic republicanism, make his thrust for the Spanish throne. arms in hand, amongst the hills and gorges of Guipuzcoa. The last Pretender-well, we shall see many more of those royal adventurers when the inevitable reaction against Socialism sweeps over Europe forty, or thirty, or twenty years hence. The chief scenes of the drama are at Marseilles—the port exotic romance where every true adventurer. whatever his quest, drops his anchor at least once in his career. Thither came "Mon-sicur George" (as he was called by the Carlists), a young man with a passion for the sea and a liking for all who use it, as well as for Murger's types of the artist, who was already credited with an ill-defined and vaguely illegal enterprise in the Gulf of Mexico. It occurs to the Carlist agent there-one Mills, a man of action after Mr. Conrad's heart, who lets him define himself by his works and few words-that this eccentric youngster is the very man to organise a supply by sea of arms and ammunutions to the Carlist detachments in the Naturally, he meets Doña Rita, and I dare to aver-however much so old and hald a saying may shock those who see in Mr. Conrad's stories only shimmering webs of subtle analysis—that we are intended to believe that Monsieur George and the "noble and loyal lady," whose face and fortune were

staked in the Carlist adventure fell in love with one another at first sight. "Who ever loved that loved not at first sight? Conrad does not neglect this and

other ancient verities because he has discovered new truths of his own. Indeed, that is the chief difference between him and the amazingly clever young novelists who trample on the conventions of all forms of the closet drama with a conventionalism of their own. There are other differences, of course for example, Mr. Conrad (like George Eliot and Mrs. Gaskell, and unlike the latter-day Freudians who seek in the under-man their evaluations of motive) knows what a vast gulf separates the ephemeral intention from the act which expresses it in an eternal series of consequences

Doña Rita had been a barefoot Basque girl who herded goats in the hills, and ran wild, and mocked at the country lads. She was of noble family, none the less, because Sanche II. ennobled all the Basques, which is why you see in their lofty, joyous countryside escutcheons carved in stone above the doorways of mere hovels. The famou-Henry Allegre, painter and collector, collected the child, educated her in daily intercourse with his famous friends, may have treated her as a niece rather than as an adopted daughter, and left her his whole vast fortune when he died. She had never known love in all that long while; if we were not told so explicitly, in a single sentence, we should yet be sure her heart was fresh and virgunal, for the story of lovers here set forth is lifted up and borne along on the wings of the primal impulse called first love—the are all the signs of it according to that little

evangel, which makes me think always of Lafcadio

Hearn as a saint come down to us from Dione's day. But the story of the preliminary hesitations and struggles of the lovers against each

other and themselves is as nothing in comparison with the living, breathing figure of a woman, deep and fragrant and many-petal'd as a rose, which Mr. Conrad creates—with a loving carefulness which suggests that his art is autobiography—for our despairing delectation The at-one-ment of the twain is dismissed in a few wordwe are toki that there was more of a deep and joyens



A CEM OF THE MORGAN COLLECTION OF STAINED CLASS AT THE VICTORIA AND ALBERT MUSEUM: "CHRIST FEEDING THE FIVE THOUSAND"-A THIRTEENTH-CENTURY FRENCH PANEL FROM TROYES CATHEDRAL

The gems of the collection of stamed glass generously presented to the Victoria and Albert Museum by Mr. J. Pierpont Morgan are a senses of four thirteenth-century panels from Troyes Cathodral. One is shown here, and two of the others appear on the page opposite. Elsewhere in this Number is an article on the whole collection by Mr. Stanley North

Photograph by courtesy of Mr. Ruckham, of the Ceramic Section of the Muse

tenderness in it than of sheer passion, and then the curtain falls on their mutual victory. Yet the reality of the Dona Rita is fair and fatal for all of us-fatal, since it convinces us that Fate has either withheld or withdrawn the greatest of earthly joys, the one other-worldly thing Fair, also, since we do in a sense for ever possess her in this wonderful book, which gives us, indeed, a more intimate sympathy with her essential self than could ever have been gained in the precarious bliss achieved by the happiest of lovers. We are not altogether sure of her looks-the tawny masses of hair transfixed by the golden arrow, the eyes of liquid sapphire, the arm of translucent whiteness and firmness (" alabaster," accord ing to the housemaid's pet story-tellers - and it is an absolutely accurate epithet, strange to say) are all we know of her outwardly and visibly. We don't even know for certain what her mouth was like-whether or not it was like La Vallière's mentioned in the ribald song-

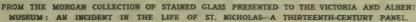
de ce bec amoureux, Our d'une oreille à l'autre va Tra là là

But we fully possess, and are fully possessed by, the soul of the creature, huntress and hunted both, halfsiren and half-child, shining with light and delight from within, utterly true to herself and to Our Lady of Nature. There are other well-created characters; the most living of all, perhaps, is Captain Blunt, the rivel lover, who doubts whether she can ever be made reputable enough to be his wife, in spite of the large alluring fortune, and, though half-hearted in love, is very capable of jealousy. These become mere shadows and are clean forgotten when the rose reveals her heart and you have fallen hopelessly, yet hopefully, in love with Doña Rita. I once made a list of twelve girls in novels whom I love devoutly -- you would never guess their names—and I have crossed out the name of a Meredithian heroine to make room for her-

#### THE GLORY OF OLD STAINED GLASS: MR. PIERPONT MORGAN'S GIFT.

From Photographs Lent by Mr. Rackham, of the Ceramic Section of the Victoria and Albert Muse.







THE WINGS: A FIFTEENTH-CENTURY FRENCH PANEL OF ST. MICHAEL



A THIRTEENTH-CENTURY FRENCH PANEL FROM TROYES CATHEDRAL THE TEMPTATION IN THE WILDERNESS



A BEAUTIFUL ENAMPLE OF SIXTEENTH-CENTURY SWISS ENAMEL PAINTING: A COAT-OF-ARMS SUPPORTED BY TWO ANGELS.

There is on view at the Victoria and Albert Museum a wonderful collection of old stained glass, which was recently presented to the British nation by Mr. J. Pierpont Morgan, son of the famous American financier and steel magnate who died in 1913. This important collection was placed in the Museum on Ioan in 1909, and Mr. Morgan's munificent gift has now made it a permanent treasure there. On another page of this Number we print an article by Mr. Stanley North describing the principal items, and through him we are able to publish here some unique photographs courteously lent for the purpose by

Mr. Rackham, of the Ceramic Section of the Museum, who has charge of the glass. In regard to the panel (shown on the opposite page) presumed to represent the wife of Otto II., it is interesting to record that Mr. Rackham and Mr. North had, unknown to each other, been working on similar lines to establish the identity of the subject. Mr. North mentions that the late Mr. Pierpont Morgan had labelled four French panels as "German," perhaps. he says, to obscure their origin, and that it was with much difficulty that he (Mr. North proved them to be French

## A "MARGATE" IN HYDE PARK FOR LITTLE LONDONERS: GIRLS AND BOYS BATHING IN THE SERPENTINE.

STEVEN SPURRIER.





THE JOYS OF THE SEASIDE AT HOME FOR LONDON CHILDREN DURING THE HEAT WAVE THE GIRLS BATHING ENCLOSURE IN THE SERPENTINE, WITH THE BOYS BEYOND.

The hours for bathing were fixed as follows: Merning, 5 a.m. to 8.30 a.m., makes only. Afternoon, 2 p.m. to 6 p.m., girls in the special enclosure; 1 p.m. to 8.30 p.m., boys; 6 p.m. to 8.30 p.m., adult makes. In our drawing the girls are seen in the foreground on the right, and beyond the partition, in the left background, are the boys. (Or) righted in the United Stars and Constant

For these little Lendon efferen who were not fortunate enough to be able to get away to the sealed during the recent heat-wave, a very excellent substitute was provided by the Office of Works

## THE HUGEST OF ITS KIND ON RECORD: THE "CHATHAM" ELEPHANT OF FOUR HUNDRED THOUSAND YEARS AGO. DRAWN BY A. FORESTIER.



WHEN ENGLAND WOULD HAVE MADE AN EXCELLENT BIG-GAME SHOOTING AREA: A RECONSTRUCTION FROM DATA OBTAINED BY REMAINS FOUND AT CHATHAM.

the Continent by the sea. The modern African elephant stuffed and mounted in the ball of the South Kensington Natural History Museum measures 21 feet 6 inches in height | shown in the picture for the sake of comparison. Red deer, spotted hyens, and wild boar are also seen.—[Drawing Copyrighted in the United States and Conada.]

The fossil remains of an elephant of enormous size, discovered in 1913 near Chatham, in clay dating back to the dawn of the Pleistocene epoch, some 400,000 years ago, to the top of the shoulder. The Chatham elephant rose to 15 feet, and its tusks were 9 feet in length and almost straight. Contemporaneous with these huge creatures was is said to show the greatest development ever reached by this species of animal in those remote times anterior to the glacial period, when England was not separated from the country, the Piltdown man—whose remains were found in 1912, in Sussex. Standing scarcely 5 feet high, he is

#### THE FIRST INTERNATIONAL AVIATION EVENT.

CONSIDERING that Holland is the flattest country in the world, and therefore might be regarded as eminently suitable for flying; considering that the Dutch are essentially a great commercial nation; and considering that the Palace of Peace is situated at The Hague, it seems peculiarly apposite that the Dutch should have organised the first international aviation event since the declaration of Peace. And certainly the Dutch deserve every congratulation on the work they have done in organising their first Aero Show, officially known as the "Eerste Luchtvaart Tentoon-stelling, Amsterdam," and familiarly called "Elta," throughout the length and breadth of Holland and the neighbouring countries. Never, in an experience of Aero Shows dating back nearly eleven years, has one seen an exhibition better advertised, and seldom has one seen a show better run. It is true that the affair is small compared with the French shows at the Grand

British aeroplanes with British aviators have done the most impressive flying

Palais, or with the British shows at Olympia, but it

is a wonderful first attempt, and it would be a good

show anywhere. It is of particular interest to this country because British exhibits predominate, and

It is true that we in this country might very easily have created a still greater impression on the people of all nations who are visiting the show, for some of our best aeroplanes are con-spicuous by their absence. None the less there are enough of our products there to swamp those of all other nations, and certainly our most sensational aeroplanes have put in an appearance. For various reasons, more or less obvious, German aircraft have been barred from the show, which, in a way, is rather a pity, because if the best German products had been on view alongside the best British machines which are present, the comparison would have been all in our favour. As it is, there are enough machines of German extraction to act as a foil to our own, though they have been built in Holland with that care and neatness which is typically Dutch and therefore compare very

well with our own so far as excellence of workmanship and finish are concerned.

Certainly the best non-British exhibit is that of the Spijker Company, whose biplanes, built under the supervision of Mr. Henri Wijnmalen—one of the pioneers of aviation and a pilot of 1909-are fit to take their place alongside the world's best. Several of the famous (perhaps some people would say "infamous") Fokker biplanes are shown, on the strength of their being designed and built by a Dutchman who became a German "for the duration of the war," and is now re-naturalised. As too many R.A.F. pilots know, they fly well, but they are not up to our best standard either in construction or performance. Quite an interesting Dutch production is a reconstructed Friedrichshafen sea-plane built by the Dutch Naval Air Service out of the wreckage of a German machine, of the aforesaid make, which was fished out of the North Sea. Another is a reproduction of a Brandenburg seaplane (minus an engine), built by Van Berkel's Patents, the firm which is famous as makers of the cutting and slicing machines so largely used in restaurants and cook-shops—a curious combination of trades. The Dutch Army Flying Corps shows a machine which is of unusual interest. It is a twin-engined biplane of the usual type with two tractor air-screws, but it is built out of the material of two Sopwith biplanes which landed and were more or less crashed in

Holland. The crews were interned, and the Dutch Government bought the machines, which were taken to pieces, and the essential undamaged parts used in the manner indicated. The result is quite good, and reflects great credit on the aeronautical engineering ability of the Dutch Army's Aviation branch.

The dominating exhibit of the show is one of the famous four-engined Handley Page biplanes, with Rolls-Royce engines. Even with one wing folded it takes up the full width of one of the two big halls in which the show is held. Incidentally, most of the front of the hall had to be pulled down to get it in. Its rival as an attraction, though not in size, is a Vickers "Vimy" biplane (also with Rolls-Royce engines) of the type on which Captain Alcock and Lieutenant Whitten-Brown flew the Atlantic, and alongside it is the amputated passenger compartment of a com-"Vimy." Next in impressiveness, though the antithesis of the two former in size, is the British Aerial Transport Company's exhibit of a " Bat Bantam " with an A.B.C. 170 h.p. engine, and a Bat "Crow" with an A.B.C. 45-h.p. engine, the two smallest machines



CASTLES FROM THE AIR: THE CHÂTEAU DE MONTRÉSOR, PHOTOGRAPHED FROM AN AEROPLANE. In the village of Montrésor, Indre-et-Loire, is a château, which was rebuilt in 1395, and again early in the 16th Century. The foundation is attributed to Foulques Nerra. The church of Montrésor contains some fine sculptures. The above photograph was taken from the air.—[Photograph by Topical.]

in the show. When one left the show an " Airco 4" had just arrived for the stand of the Aircraft Transport and Travel Company, which was already occupied by a number of magnificent pictures of "Airco" products and a Napier "Lion" engine, which attracted much attention. A Blackburn "Kangaroo" was expected momentarily. A stand allotted to the Gosport Aviation Company, one of our leading makers of flying-boats, was unoccupied, which was a pity. Dock strikes and such affairs had held up several other British exhibits as well as these two.

Among the British exhibitors of component parts and accessories were the Palmer Tyre Company, the General Aviation Contractors, the British Maillite Company, the Farringdon Propeller Company, the Adastra firm, who make clothing for aviators, Marconi's Wireless Company and Alban Richards, the maker of portable sheds-who, incidentally, had put up all the sheds on the aerodrome, and had done it very well indeed. The French exhibit consisted of a Bréguet biplane, a Caudron biplane, and some Gnôme and Le Rhône engines. There were no Italian exhibits in the show itself, but three Italian machines flew frequently from the aerodrome.

The aerodrome attached to the exhibition was vile, considered as an aerodrome surface, but it was a testimony to Dutch energy. A few weeks before

it had been just bog-land with a thin layer of sand over it. When the show opened it was quite serviceable for small machines, but the big ones bogged up to their axles every time they landed, until the pilots learned from experience where the hard spots were. So far as size and situation are concerned it is magnificent, and it will be very good when the surface is properly doctored. Captain Sir John Alcock, K.B.E., D.S.C., who came over by boat, caused the vast crowds at the aerodrome great joy by his neat flying of a com-mercial Vickers "Vimy," which had been flown over earlier by Captain Cockerell, R.A.F. So did the flying and landing of Captain Meintjes, R.A.F.—a South

48

By C. G. GREY,
Editor of "The Aeroplane."

African Dutch pilot-who brought over a crowd of people in a two-engined Handley Page. The Dutch people in a two-engined riandery rage. The Dutch were also highly delighted at the arrival of their compatriot Mr. Frederick Koolhoven, with Mrs. Koolhoven and his chief aerodrome engineer, complete with spare parts and luggage, direct from England in the big Bat commercial machine, with a single Rolls Royce engine, piloted by Major Draper, D.F.C., late R.A.F. It will be remembered that this machine—the first ever designed

for commercial flying-was illustrated in this paper as soon as it was produced by Mr. Koolhoven.

The greatest excitement was caused by the wonderful flying of Major Draper on a little "Bantam" which had been flown over by Mr. Duke, R.A.F., who himself did some very fine exhibition flying. Before they arrived the German-Dutch pilot - designer - constructor, Herr Fokker, who is a very fine pilot indeed, had been doing aerial acrobatics on one of his own machines, and was quite the popular hero for days. But when Major Draper turned up and showed the superiority of British aeroplanes and British pilots the crowd simply yelled itself hoarse. It is only fair to record that Herr Fokker "gave him best," and after his first show went up and congratulated him, saying, "It is a good thing for us that those machines did not come into the

war." The pity is that the aforesaid Bats might have been in the war for at least twelve months but for what one had better, perhaps, describe as official errors of judgement. Another example of British superiority in aviation was afforded by two officers of the Australian Flying Corps who flew to Amsterdam on two standard Avro biplanes with Le Rhône engines, and took up passengers all day long at the rate of about fifty a day apiece. They and their machines worked with the regularity of a Tube

An impressive flight to Amsterdam was made by a Gosport flying-boat, piloted by Lieut.-Col. Hope-Vere, R.A.F., and Lieut. Carnegie, R.A.F., who, with Dr. Bisschop, Mr. M. H. Volk, Mr. Nicholson and engineers on board, left Southampton at 2.50 p.m. on July 31; and alighted at Amsterdam alongside the Elta ground at 8.25 p.m. A glance at the map of Europe helps one to appreciate what that flight means. Just as one was leaving the show for a 24-hour train and boat journey to London, Captain Lawford, R.A.F., came in, having flown an "Airco 9" from Hounslow -the regulation London starting place-to Amsterdam hours, and Captain Saint on an "Airco 4' had arrived shortly before in about the same time. Truly international aviation has had a good beginning, and we owe Holland much thanks for affording the first opportunity

# Before the Anglo-Persian Agreement: British Officers at Shiraz; and Captured Brigands.



GUARDING OUR INTERESTS IN THE LAND OF THE SHAH: OFFICERS OF THE SOUTH
PERSIAN RIFLES.

CAPTURED BY THE SOUTH PERSIAN RIFLES: THE CHIEFS
OF THE BRIGANDS OF ISPAHAN

The left-hand photograph above shows the British and native officers of the South Persian Rifles of Shiraz, under the command of Lieut-Col. W. A. K. Fraser, M.C., of the Central India Horse. The right-hand picture shows in captivity the four chiefs of a tribe of

brigands who have been troubling the Province of Ispahan for many years. The Shah of Persia recently left Teheran to visit Europe. A new Agreement between Great Britain and Persia was signed at Teheran on Aug. 9, providing for a loan of £2,000,000 to Persia.

# The Heaviest Wreck Ever Lifted in Wires: The Salving of Captain Fryatt's Ship.



CAPTAIN FRYATT'S SHIP SALVED: THE "BRUSSELS" AFTER HAVING BEEN RAISED.



EXPLORING THE HATCHWAYS AND ENGINE-ROOMS: DIVERS AT WORK ON THE "BRUSSELS."



ON THE FORE-PART OF THE "BRUSSELS" AFTER SHE HAD BEEN RAISED:
DIVERS AMONGST THE MARINE GROWTHS ON DECK.

On August 4 the British Admiralty succeeded in re-floating the steamer "Brussels" at Zeebrugge. She is the heaviest wreck ever lifted in wires, and it is the first occasion on which four lighters have picked up a ship. The lighters were placed on either side of the wreck, and sixteen steel hawsers were passed under her bottom. After a tremendous



THE DECKS FESTOONED WITH MUSSELS AND SEA-GROWTHS: A UNIQUE PHOTOGRAPH OF THE "BRUSSELS" AFTER SALVAGE.

upward strain the wreck was hauled from the mud by main force. After her long submergence the ship was covered with marine growths and festoons of mussels. It will be remembered that after capturing Captain Fryatt and his ship, the Germans took her to Zeebrugge. When compelled to evacuate it they sank her.—[Photos. By CRIBS, SOLTHISEA]

["The Liver-Fluke and Pond-Sneils"-Continued from page 218.]

history could be traced. The ciliated young, or miraridia, of the liver-fluke are easily hatched from the eggs of that worm when it is ripe and removed from the liver of a dead sheep, but they were not attracted by the common pond-snail, Lymnaus stagnalis, nor by the flat-coiled suail Planorbis, nor by other species such as Lymneus periger and other kinds of snails Under these circumstances Mr. Thomas examined the water-meadows near Oxford, where "sheep-rot" was frequent, and he found that after the floods had receded there were large numbers of a very small kind of pond-snail, about one-fifth of an inch long, known as Lymnaus truncatulus, adhering to the grass from which the water had disappeared. He collected a quantity of this small water-snail and brought them to the laboratory, where he had a glass basin in which hundreds of the ciliated miracidis hatched from the eggs of the sheep's fluke were swimming. I myself saw the experiment. He placed two or three of the little snails in the water. They expanded and began to crawl, but immediately, as though drawn by a magnet, the ciliated young or miracidia swam at them and violently pressed on to and into their bodies. The right snail was found at last! Mr. Thomas had then no difficulty in infecting a large number and following day by day the growth and changes which the little parasites undergo in the Lymnæus truncatulus. The chief of these are exhibited in Figs. 2 to 5, copied from the memoir published by Mr. Thomas in the Quarterly Journal of Microscopical



BEFORE THE PEACE TREATY RECENTLY CONCLUDED WITH AFGHANISTAN: BRITISH LORRIES IN THE KHYBER PASS.



WHERE EACH GRAVE WAS FOUND TO CONTAIN A LARGE BOX OF AMMUNITION: AN AFGHAN GRAVE-YARD AT DAKKA.

Science, 1883. I have already explained these figures, taking them to exhibit several features which are present in the whole group of "flukes." An important fact, observed long ago, but re-established



WORSE THAN OUR RECENT HEAT-WAVE: 125 DEG, IN THE SHADE-BRITISH OFFICERS SHELTERING AT DAKKA.

by Mr. Thomas, is that the Cercariæ swimming in the flood waters as they recede, attach themselves, each in a sort of slimy case, to the blades of grass and so are eaten by the sheep when they return to the pasture. Numbers of the little pond-snails infested with the liver-fluke's Cercariæ, or tadpoles, are left high and dry on the grass, and may be eaten with the grass by the sheep unless removed or destroyed.

A very serious disease is caused in Africa by an elongated species of fluke which lives in the blood of man and is called *Bilharzia*. Its life-history has recently been shown also to pass partly in the bodies of certain aquatic molluses.

I should, perhaps, point out that to prevent his sheep from being attacked by liver-fluke, the farmer (in Europe and Asia) must keep them away from meadows which have been recently flooded and must also take steps to prevent the survival of the Lymnaus truncatulus up to the time when the flooded land is re-entered. In North and South America and the Sandwich Islands, other allied species of Lymnaus are reported as acting the part of primary host to the liver-fluke, and in Australia'a snail of the genus Bulimus is said to take it over. But detailed information is wanting.

Lieut.-Col. Solomon J. Solomon, R.A., asks us to correct a little error in his article which appeared in our issue of August 9, on "The Application of Art to War," in the matter of camouflage. A sentence in the first paragraph on the subject of aerial photography stated that "the sensitive plate with an inconceivable distinctness... would disclose so much as a belligerent wants to know of the movements and intentions of his opponent." Mr. Solomon asks us to mention that this should read—"so much that a belligerent wants to know," instead of "so much as."



WHERE BRITISH AIRCRAFT DID COOD SERVICE IN THE RECENT AFGHAN CAMPAIGN: AN AEROPLANE "CRASHED" (IN THE BACKGROUND).

# SEVEN SPAS ALL BRITISH.

## Take your cure on your holiday.

BATH has been in active service for 2,000 years. The hot springs still yield 500,000 gallons daily of health-restoring waters, rich in radium emanation and possessing remarkable therapeutic effects.

BUXTON, situated in the centre of Derbyshire's lovely "Peak District," claims the highest altitude of any town in the Kingdom. Mineral waters rich in radio activity. Luxurious modern bathing establishments.

CHELTENHAM has no rival in respect of sylvan beauty. A first-class town with every convenience, luxury and amusement. Spa waters comprise Magnesia, Alkaline, Sulphate, Saline and Chalybeate Springs.

DROITWICH Brine Baths, renowned throughout the world. The countryside is delightful: orchards, deep lanes, wooded heights, gabled cottages and bright gardens.

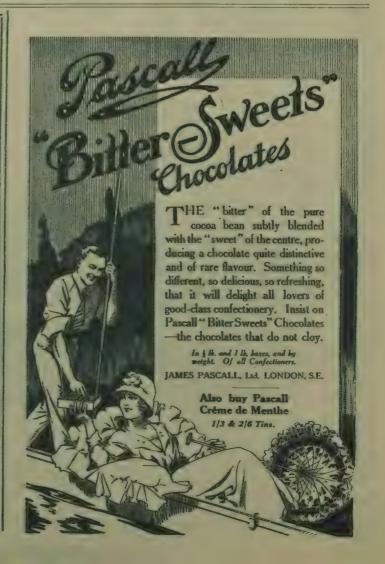
HARROGATE possesses not only the finest variety of natural mineral waters in the world, but also those attractive features which make it a "live" up-to-date pleasure resort as well as a health-giving spa.

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Read all about these delightful resorts in seven Illustrated Booklets, which will reach you on request addressed:—

HON. SECRETARY, SPAS FEDERATION (Room 13), HARROGATE.



# Solidity of Organisation

How Massed Production Cuts Selling Price and Makes for a Better Car.

THE difference between a Regiment and a Rabble is very conspicuous. The former consists of a great many individuals all working together with a common object; the latter of a similar number of individuals each serving his own object, each going his own way, with a complete lack of cohesion and of that co-operation which begets the strength of union.

It is only because our Armies in the field were disciplined and organised that we were enabled to vanquish the Germans. If, in 1914 every officer and man in France had insisted upon tackling the oncoming enemy in his own way, and had the crowds of men in Great Britain not been able to convert themselves into Armies of well-drilled soldiers, the inhabitants of Buckingham Palace and Windsor Castle would to-day have been conversing in German.

Co-operation is the backbone of successful military warfare, but it is of equal importance in connection with industrial warfare.

You didn't realise, perhaps, that this country is in the midst of an industrial war. It had not occurred to you, for instance, that the land of our forefathers had been in vaded and that the invaders, far from being ejected, gave every promise of very soon increasing enormously in numbers!

Germany was a military nation. In order to fight her, we, too, had to become a military nation. There was no alternative.

Exactly the same thing applies to industry. There are at present, tens of thousands of American cars running over the roads of Great Britain, and—whyshould we attempt to denyit?—giving their owners a great deal of satisfaction.

The reason is as simple as ABC. These cars have been bought, in direct competition



The a-scated Coupé, capable of being used open or closed; with dickey seat, £350. Equipment same as other models, with the British car on its own soil, because the American makers have studied the science of Quantity production. By thus means they have been enabled to build cars in enormous numbers, to build them well and to build them cheaply. They have derived sufficient advantage from quantity production not only to be able to laugh at the cost of freightage across the Atlantic, but to sell completely equipped vehicles, ready to drive away, at a price only comparable with that of the chassis alone of the equivalent British vehicle.

Motorists have bought these cars in spite of their being of foreign origin. They would have preferred to buy British cars. If the prices had been the same they would never have hesitated to purchase the Home Product. If the latter had cost even a reasonable amount more, they would still have bought the British car. But the difference was too wide to be covered by simple patriotism

Some of those motorists, men with the inquiring mind, asked British motor manufacturers why it was that they, too, could not produce cars that combined the virtues of excellence, completeness and cheapness.

The reply was that "It couldn't be done." That was before the war.

Since then much water has flowed under the bridges, and much knowledge has become available to those who desired to acquire it. One seems to remember that "It can't be done," greeted the first peremptory demand for millions of shells, thousands of guns, and hundredo of acroplanes. Yet it was done. The spur of military necessity was digging into our ribs. And yet, sore as they still must be, we do not seem to re-act to the spur of industrial necessity quite so quickly as we might.

During the war, we have in this country become more than students, we have become masters, of the science of Quantity Production. Knowing this, the British motorist turns to the British motor industry and asks hopefully, "Can it be done now?"

In the majo The a-scated Coupé, capable of being used open with dickey seat, £556. Equipment same as oth



The 14-h.p. Angus-Sanderson Car de Luxe: Standard 4-scater, 2450 complete with he windscreen, electric self-starter and lighting, five detachable wheels, five tyres, etc.

donably be driven to despair. Beyond question he would be, did he not perceive that there is yet hope, that the majority are not all, that there are exceptions to the general rule, and that there are still in this country men with initiative, enterprise and ability who are not unsusceptible to a new idea, but are ready to develop it for all it is worth. That, in fact, there are firms who refuse to be bound by old traditions and are willing to adopt an entirely new perspective.

develop it for all it is worth. That, in fact, there are firms who refuse to be bound by old traditions and are willing to adopt an entirely new perspective.

Sir William Angus, Sanderson and Co., Ltd., of Newcastle-upon-Tyne, have long endeavoured to find any physical or psychical reason why, if Quantity Production of cars can be successfully accomplished in America, it cannot be equally successfully prosecuted in Great Britain. They cannot find any reason. No such reason exists. And this they have already proved up to the hilt.

This firm tackled the problem unhampered by ill-founded preconceptions, and they furnished a thoroughly satisfactory solution. That solution is the Angus-Sanderson car, the embodiment of the New Idea in British motor manufacture.

In the first-place, the system of producing the whole car under a single factory roof was dismissed as impracticable, and instead the principle of having the various component parts made each by a specialist in his own line was adopted. Several important advantages follow upon this.

Jack-of-all-trades is notoriously master of none. Let us take, for the sake of example, the gear-box. In the ordinary way this is designed by the same man who is responsible for the engine with which it is to work, and made in the same shop. Now the designer is a human being, with all a human being's limitations. If he knows all there is to know about engines he cannot possibly know all there is to know about gear-boxes, and the same applies to other necessary components of the car. When your life is in danger and a delicate operation is your sole chance of recovery, do you go to a "General " Practitioner or to a Specialist! A Specialist, every time, of course.

For the same reason the gear-box of the Angus-Sanderson car is designed and constructed by a specialist in gear-boxes, and hos been in the habit of making them in huge quantities, is in possession of the most up-to-date machinery and operates the very latest and best engineering methods. The same principle applies to the



NEWCASTLE-ON-TYNE

provides not only the best precept, but also the best practice, and with these he combines a ower cost of production

provides not only the best precept, but also the best practice, and with these he combines a lower cost of production

All these specialist producers pull together, with a single object in view. The Angus-Sanderson car as a whole is that object, and it constitutes an amazing illustration of the value of intensive co-operation. By no other means whatever, could a car of such completeness and quality have been produced at the price of 1450. And bear in mind that it is in no sense experimental. If it had been made under a single roof it could hardly fail to be so to a certain extent. But because it is the combined production of reputable specialists it was Right from the very start. There is, unfortunately, insufficient space to deal adequately with all of the great advantages attendant upon this logically systematic principle of Mass-Production, but one or two salient points deserve special mention. One is that, thanks to the combination of several huge manufactories, large scale output has been rapidly and efficiently achieved. The necessary plant already existed and there was no need to detach a large volume of capital and then wait until the machinery could be got together. Another is that in the event of a knotty point arising it can be dealt with, not by a single individual, but with the accumulated skill and experience of a board of experts. Thus the problem is considered not from one only, but from all points of view.

The output of Angus-Sanderson cars during the next twelve months is expected to be in the neighbourhood of 12,000 cars. These are big figures for the British motor industry. They demand a perfection of organisation, and administration on sound, bold and progressive lines. They demand that those re-



The z-scater model (with dickey), 5438. Equipe

sponsible look not only to the present but far into the future. A huge project like this, once started, must be kept in regular motion. It must begin as it is intended it should con-

once started, must be kept in regular motion. It must begin as it is intended it should continue.

And here a word as to price. The Angus-Sanderson car could be sold to-day at a high premium. There are, literally, thousands of potential owners who would cheerfully pay froo for it. But you cannot found a great industry upon opportunism. The car is a standard article with a standard price, and these standards will not be departed from.

One has said that this is a huge project. Sir William Angus, Sanderson and Co., Ltd., have acquired as a going concern the largest National factory on the North-East coast. Situated at Birtley, near Newcastle-on-Tyne, it has an area of 55 acres and comprises a covered floor space of three-quarters of a million square feet. It possesses a township of model dwellings for employees. Along its forty railway sidings components from Birmingham, London, Glasgow, etc., will enter the vast erecting shops and emerge therefrom as the complete Angus-Sanderson car, equipped with every detail and ready for any amount of hard road work. Here, also, are made all the standardised bodies, two seaters, four-seaters and coupés. At present the assembling and coach-building is being carried out at the old works at Newcastle, but very shortly these will be vacated, and the huge new factory will be in full production swing.

The Angus-Sanderson is backed up by a well-considered service organisation. Spare parts and replacements will be procurable anywhere and everywhere from hundreds of agents throughout the British Empire. And those replacements will fit accurately. The entire car is covered by a comprehensive guarantee that will be liberally construed. Where any doubt arises as to "whose fault" it is, the makers will assume responsibility and the part involved will be freely and quickly forwarded. They believe that an Angus-Sanderson that is not running perfectly and satisfying its owner is a bad advertisement—and they will not have bad advertisements at any cost.

#### LADIES' NEWS.

THE world and his wife are very busy bathing in such hot, delightful days as those I write in. In most enlightened sea-side places the world and his wife and small people may bathe together, and in suchwise enjoy the cool, refreshing dip a thousandfold more than if separated. Also, the wife, to whom the enjoyment of the sea-dip is due to a fascinating half-fear, is glad, for the children's sake, that Mr. World should oversee the family plunges and share her responsibility. Naturally, therefore, pretty bathing costumes are a matter of concern to both sexes; men are keen on having the garment of their college or regimental colours. Women have choice in style, but swimmers prefer stockinette tights to anything, and have these of whatever colour they think will best suit their sea-immersion complexions. I have seen red, pink, black, pale blue, yellow, and even green. In such cases the cap is always to match in colour. Sometimes it is a turban of oilskin or macintosh; again it is tam o' shanter or pirate shape; and occasionally has a highly ornamental tassel. Those whose bathing is of the more elementary order, called "dipping," and who are only momentarily immersed, give more attention to their costumes. are sometimes not often in England-of satin or foulard or cotton ninon, and are trimmed with frills and embroidery and braids and galons. Almost all of them are in the nature of jumpers and knickers, and British women prefer serge thick cotton with roughened surface, or stockinette. In the matter of bathing head-gear we are much more strictly utilitarian than our Continental friends, but we get year by year to consider appearances more; and there are bathing caps and hoods nowadays which, while keeping the hair dry, are really good to look at collectively. and are also individually becoming.

The King did not spend the Twelfth on the moors, as so many of his subjects did. As is his invariable rule, his Majesty sacrificed pleasure to duty and remained in London until there was less unrest in the Labour world, and the sitting of l'arliament nearer its rising for the summer recess. The Council held by the King on Monday heralded his Majesty's departure for Balmoral, where, if all goes well, he will, with the Queen and his younger sons and Princess Mary, remain for several weeks, probably until the beginning of October. It is difficult to reconcile these plans with the statement, made in several papers, that Major Evelyn Gibbs and Lady Helena Cambridge will be married in St. George's Chapel, Windsor, at the beginning of September. The beginning of October is



A COOL AND ELECTRIC Some back to favour for summer wear. This smart, yet picturesque, model has an underskirt of white tulle, and is provided with dainty tulle flounces to finish elbow-sleeves and neck, while narrow black velvet ribbon marks the waist-line.

much more probably the time fixed upon. The wedding is most unlikely to take place in the absence of the Court, seeing that Lady Helena is the Queen's niece, first cousin and childhood and girlhood friend of Princess Mary.

In the warm sunshine and the soft breezes of the South it is difficult quite to realise what the weather is like in the Highlands. Many women who do not know them well go up there provided with an outfit for a Southern midsummer. There are days on the moors when the sun is fierce enough to blister. This it will effect much more easily through linen, muslin, or thin silk than through light, soft woollen fabric. On not a few of such days, the evening may bring a cold mist, clammy and wetting; again the soft, light wool is the comfortable wear; and many a sportswoman-ay, and sportsman too-has been thankful for his light, pure wool Jaegers, old friends, tried and trusted. A very well-known, all-round sportswoman not only fits herself at all points with Jaeger clothing for inside and outside wear, but she has a store on hand to lend to guests whom she knows, by years of experience, to be so often trapped by the vagaries of the Northern climate. its heat and cold, its high cool winds, frequent storms of rain, and many cold moist mists.

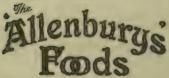
We women do very greatly resent the prices we have to pay for necessaries. Dress is necessary, yet the less material there is in a frock, and the more shapeless it looks, the higher grows the cost. We read about the Profiteering Bill, but very few of us are clear as to how it is going to profit us. Are we to take a new frock before a Tribunal and tell it that the cost was £35 and leave it to find out whether that means profiteering or not? Much depends on where it was purchased, and the rent and style of the establishment. The point is that women would be much better able to settle what is and what is not profiteering in the matter of their own attire and their own hats than men. "Few hats in the world are worth more than six guineas," says the man; but the woman knows that certain plumes, ospreys, straws and ribbons may well run the particular bit of smart head-gear up to fifteen or twenty guineas, and that there is no profiteering even Once upon a time the price of the wool for, and the hand-knitting of, a pair of man's shooting stockings, bought at a quasi-philanthropical establishment, was justly and carefully followed up, and the profit was found to be a hundred per cent. That was long before war days, and the establishment has ceased to exist, but it was a clear case of profiteering. The man who investigated this matter said it cost him in time and money enough to provide him



# **BABY'S** Summer Troubles

EVERY mother and nurse is anxious about baby's health during the hot weather. The dread of summer diarrhosa is ever present, and the resulting infantile mortality cannot be forgotten. Baby can only thrive if his food is pure, suited to his digestive powers and wholly nourishing.

Starchy prepared foods must not be given and when cow's milk, with all its worries as to purity and preparation is suggested, remember



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Hard and Red. Constantly Itching and Burning. Many Sleepless Nights. Cuticura Heals.

"My complaint began with constant irritation out the back of my hands which gradually grew worse until both hands were covered with hard red primples constantly itching and burning, giving me many sleepless nights. These later dried, leaving a small scale. "I saw an advertisement of Cuticura Soap and Ointment and sent for a free sample. The burning and itching were less, so I purchased more, and I was completely healed." (Signed) C. Turner, "Peachley," Brampton Park Rd., Hitchin, Herts., Eng.

You may rely on Cuticura to care for your skin, scalp, hair and hands.

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Dri-ped Sole Leather is Waterproof, Double-wearing, Light and Flexible.

READILY OBTAINABLE. Owing to the cessation of Army requirements, Dri-ped Leather can now be readily obtained. Do not be put off.

ITS ECONOMY is greatly accentuated by the high prices of ordinary leather and of footwear. Dri-ped Leather saves re-soling charges and new-boot bills.

CAUTION.—Insist on Dri-ped Leather soles, but see that the Purple Diamond Trade Mark is stamped every few inches on each sole. Without it the leather is a substitute.

# Dri-ped Leather's Services

No. 12-Vacation.

School vacations bring a painful duty to mothers of healthy schoolboys and schoolgirls, and that is, the examination of school outfits. One item, however, which need cause no apprehension is the Dri-ped Soled Footwear; Dri-ped Leather yields double or treble the wear of ordinary sole leather, and commonly outlasts a full term's wear by even the most vigorous schoolboy—besides keeping out the wet absolutely at all times. So that for economy's and health's sake parents are more and more realising the necessity of insisting on only Dri-ped Sole Leather for all the family's footwear.

In case of difficulty, write to-

SOLE PROPRIETORS: DRI-PED, LTD., BOLTON, LANCS.

(LATE PROPRIETORS: WM. WALKER & SONS, LTD.)

with shooting stockings for a long life. It looks as if we must pay up some way, either to profiteers or to investigators. After all, we had far better go without things if the prices



THE WIFE OF A V.C.; MRS. ARTHUR DRUMMOND BORTON. Mrs. Borton is the wife of Lieutenant-Colonel Arthur Drummond Borton, V.C., D.S.O., K.R.R.C., who won the V.C. in Palestine, and the D.S.O. in Callipoli. Mrs. Borton is the daughter of Mr. Robert Stewart Lockbart, and was married in 1915,—Photograph by Sauser.

are mordinate. Should enough of us decide on this action, pronteering would cease without further expense!

London is getting rid of its aspect of war weariness fast. The big houses and shops are all being done up as quickly as may be with a continued shortage of labour and a rising cost of materials. However, things must look London-like and ship-shape for next season, which, should all go well, and workers work and strikers cease from troubling, promises to be of a certain liveliness such as has not been known for years. A friendly American invasion is imminent, and American women are only too

anxious to help the dear old home-country-they are all of British extraction now-by spending money in her, They love spending money, anyway, and are now reputed the only rich! The wonderful house of Waring and Gillows is a great help to us all now in decorating our interiors, which is women's work, while men swear by it for external renovations. Because the firm has been chosen by the King and great nobles to do their decorations and furnishings, the most modest householder need not fear to go there. There is nothing worth knowing about furnishing and decorations that this firm is not au fait in. They can do quite the best and most effective and lasting for a moderate price, just as they can for a big one. They buy so largely and expertly, with such foresight and experience, that all classes of customers reap great benefit, and their taste is unexceptionable.

So much has dancing appealed to us, that countryhouse parties have been dancing on the lawn in the moolight. To many minds the drawback to the pleasure of the dance is that it is usually in much betlowered and heated rooms, and that the exertion is, in such circumstances, decidedly fatiguing. Our climate is not always kind to open-air dancing, which is the more reason it should be enjoyed when possible, for it is then really a healthful as well as a happy exercise. Several hostesses have already achieved laurels in the minds of their guests by having outof-door "hops." One was particularly happy in having a dancing floor made out of one belonging to an old Army Her outdoor "hops" are quite a feature in the neighbourhood; grass is not the best dancing floor, and dancing is not the best thing for grass. Lawns are exceeding dear in the sight of their owners, the recipe for a perfect one being "Ye cuts it and ye rolls it, and rolls it and ye cuts it, every second day for a matter of two, three 'undred years, and then ye can call it a lawn !

Women are all rather pleased that a well-known soldier has expressed an unfavourable opinion of long hair for It is one of the things our sex does not admire in the other. Perhaps we like a monopoly of what is said to be a glory unto us, but what we really dishke is grease

Wardrobes just now are matters for most anxious consideration-not the harmless, necessary pieces of furniture, but their extremely worrying, if fascinating, contents. Women on the eve of departure for wherever they are going wake up to the fact that they have not a thing fit to wear. It is a case of hurry and scramble and prying

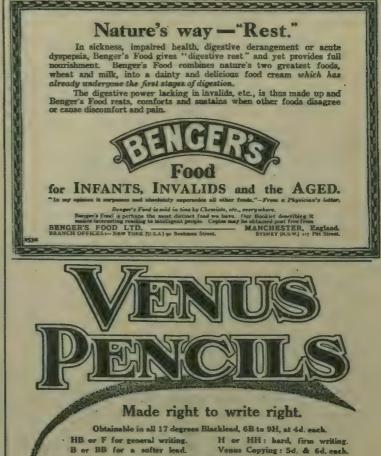
into the secrets of the autumn fashion campaign, so that what is purchased now may not be hopelessly out of it later. The North demands the very best of tailor-building and the most rehable of material. So costly are these things that the conscientious woman wants them to last—and small blame to her, for, if they don't, the contents of one's purse won't. The safe line to take is longer coats, straight lines, and a little longer skirts also; the signs point to the rentrée of neat tailor-cut and tailor-made shirts. Jumpers are said to be about to jump as quickly out of favour as they did into it. No one will very greatly regret them; they are ungraceful garments, and, degenerated as they have become, many of them are grotesque. A. E. L.



THE WIFE OF A BARONET: LADY WALKER.

Lady Walker is the wife of Sir Robert Walker, Bt., of Sand Hutton,
Yorkshire, and Beachampton, Bucks. Before her marriage, In 1913, she
was Miss Emily Synolda Thursby-Pelham, and is the daughter of Mr.
and Mrs. James Thursby-Pelham, of Upton Cressett, Salop. Photograph by Yevonde.





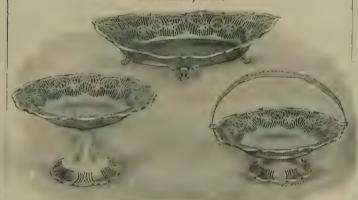
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1. Bread or Dessert Dish, length 11 in. -- £14 10 0

 $12\frac{1}{2}$  in. -£16 16 0 2. Dessert Dish, 4½ in. high, diameter 8 in. £13 13 0

3. Cake Basket with handle, diameter 9 in. £18 10 0

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In this way both the nutritive substances furnished by Mellin's Food and the vital qualities of fresh milk unite- to satisfy com-pletely the demands of the growing child.

Mellin's Food, prepared as directed; provides all the nour-ishment necessary for the development of a sound and sturdy constitution. It can be instantly adapted to suit the most weakly, as well as the strongest, baby:

Start baby on Mellin's Food to-day and ensure for him a foundation of health and strength.

SAMPLES POSTAGE FREE. Mellin's Food on receipt of 4d. stamps; Mellin's Food Biscuits on receipt of 4d. stamps. A valuable handbook for mothers will be sent free of all cost to any mother, MELLIN'S FOOD WORKS, PECKHAM, S.E. 15.



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BURBERRY Weatherproof Topcoats convert changes of weather into factors of no importance, because Burberry materials are woven and proofed by special processes which render them impervious to rain or chilly winds, yet preserve textural self-ventilation.

Burberry models, of simple and practical character, ensure freedom and comfort to the growing boy or girl, whilst their hard - wearing materials withstand rough usage without

# deterioration. THE BURBERRY WEATHERPROOF OUTFITS FOR PUBLIC An efficient safeguard for boy or girl, either

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#### SCIENCE JOTTINGS.

ARE WE DEGENERATES?

THE sturdy Englishman has long been a popular I conception on the Continent, and the belief is well summed up in the portrait or caricature of the typical John Bull, represented as a stout, middle-aged man,



WIFE OF A NEW RAILWAY KNIGHT: LADY WILLIAMS. Lady Williams is the wife of Sir Tl m.o. W. o. Cer of the London and North-Western Railw... w.o. received his the recent list of new Birthday Honours. Photograph by Llliott and Fry.

possessing the remains rather than the full measure of physical strength, obviously slow of movement, but capable of a certain bulldog tenacity when fully roused. How far this has been formed from observation of our national history-which exhibits us as a people always unready for war, but with an awkward habit of winning the last battle— may be open to question. But our love of athletics, dis-played when the Continental nations had not learned the taste for them, coupled with the inveterate human habit of seeking for physical signs of mental concepts, doubtless did much to make foreigners believe that our physical powers of resistance corresponded to our mental. Hence it came as a considerable shock to others than ourselves

when Mr. Lloyd George, speaking from the study of the numbers of rejected examinees under the Military Service Acts, described us as "a C 3 nation." That a larger proportion of us than was expected then proved unfit for service in the field is doubtless true-but does this show that we are physically less fit than our forefathers?

A lecture which Dr. George Dreyer, Professor of l'athology at Oxford, delivered to an Aeronautical Congress of Allied Powers at Rome in February last throws some welcome light on this matter. Writing some seventy ago, the celebrated English surgeon, Jonathan Hutchinson, thought that he had discovered a crucial test of physical fitness in what he called the "vital capacity" of the lungs. This he estimated by the use of the spirometer, an instrument which allows the amount of air expelled by the lungs, after the deepest possible inward breath has been taken, to be measured. It would be manifestly absurd to compare by this means the lung-capacity of a six-foot Life Guardsman with that of a five-foot Artillery driver, and corrections have therefore to be made in the observations for height, weight, chest-measurement, and the like. On these corrections, Dr. Dreyer differs from his pre-decessor, and he is probably right when he lays down, as he does in the paper referred to, that the "vital capacity should be considered as a function not of the height, but of the total amount of body-surface.

Armed with this pronouncement, it is interesting to compare the figures given by Hutchinson and Dr. Dreyer respectively as to the standard of physical fitness dis-closed by their observations. Hutchinson thought that he had found the maximum of such fitness in the case of a chosen body of recruits at Chatham, and he accordingly takes this at 100. An average lot of Grenadier Guards only reached the figure 93.4; while a similar squad of "gentlemen," or men of leisure, gave 84.3—only a little way in front of "paupers," who averaged 82.5. Dr. Dreyer's figures, on the other hand, show alike for a picked body of athletes and for the ordinary Oxford under-graduate a figure of 108.3; for Boy Scouts, 105.7; for men of the "lower" class, 92.6; and for a mixed squad of "females," 83.6. The maximum of physical fitness thus measured therefore shows a rise of something like 8 per cent., while the men of the "lower" class are about the same amount above Hutchinson's minimum—which is reached, moreover, by the average modern woman. This last fact is peculiarly significant when we consider that she has naturally a far smaller body-surface than the male.

It follows, therefore, that in physical fitness, as thus tested, we have not degenerated; but, on the contrary, have as a nation advanced considerably. How this has

been brought about there can be as little doubt. The abuse of alcohol-we all remember the case of Mr. Verdant Green, made drunk by his companions on his first night in college-by our grandfathers has been reformed, the housing and feeding of all classes is more sanitary, and more fresh air and exercise is taken than in 1848, when Hutchinson wrote. Above all, the young are better trained; and Dr. Dreyer tells us that the Boy Scout shows a 15 per cent. increase of fitness above the boy who is not a Scout. It is plainly, therefore, the training of our youth that can take away from us the reproach of being a "C 3" people and although better housing, feeding, fresh air, and the like may do much, it is along these lines that further advance seems most possible. We should not forget also in this connection that a far larger proportion of the inhabitants live in towns and work in factories than was the case in 1848. All which arguments go to show that the Americans are wise in their generation in decreeing what is practically universal military training-not service-for their youth. - F. L.



A NEW PEERESS: MRS. HALL WALKER, WHOSE HUSBAND HAS BEEN MADE A BARON.

Among the Birthday Honours recently announced was the barony conferred on Colonel Hall Walker, M.P. for the Widnes Division of Lancashire. His wife, whom he married in 1896, was Miss Sophie Sheridan. From a portrait by J. S. Sargent, R.A.

# URODONAL

When KNIGHTS were bold. in the olden days, medical men were at a disadvantage owing to the lack of scientific enlightenment. Nevertheless, from the earliest dawn of Medicine physicians have endeavoured to relieve sickness by acting on the skin, kidneys, and bowels, using diaphoretics,

diuretics, and purgatives for the purpose.

The progress of Science, however, has now enabled them to discard mere rule-ofthumb methods, and where the physician of olden days trusted to crude stimulation, his successor of to-day aims also at reducing the insoluble irritant and poisonous substance: (among which uric acid and its derivatives is the most prominent) to a soluble form that can be readily eliminated via the kidneys.

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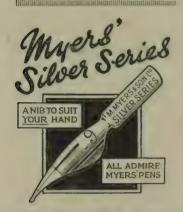
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McIntyre, I can spare |
them," said Ferguson. ERE is a pair of dry socks,

- "Are you sure?"
  "Yes."
- "Thanks, old man, but really aren't your feet as wet as mine?"
- "Well, all I can say is they ought to be. My socks are soaked. Hand me that towel, please. And as a safeguard, you had better go and get us a dram apiece whilst I am changing."
- "But tell me," McIntyre asked Ferguson over lunch, "what shoes are you wearing?"

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"A new pair I was lucky enough to get just before coming away. They don't look like golf shoes, in fact they don't look anything particular, but they are, my word. They are waterproof right enough, yet frankly you are not more surprised than I am myself at their keeping my feet dry this wretched morning."

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#### THE CHRONICLE OF THE CAR.

The New Lighting Office has rescinded the war-time Lachton's Office, and we have now

back to the chaotic state of affairs which existed prior to 1915 While, like most people, I am all for getting rid of war restrictions as early as possible, it does seem to me that this revocation of lighting regulations is an ill-judged act. So far as I am aware, no one wanted them completely washed out. All that was necessary was to secure and enforce some really fair and workable standard of motor head-light power, and the rest could have stood, to the contentment and satisfaction of most road-users. Now the position is that, so far as the motorist is concerned, there is no limit to the power of the lights he may carry on his car; while, at the other end, he may, if he please, content himself with a single oil-lamp showing its the number-plate and throwing a red

The law as to the lighting of vehicles other than motor-cars is once more regulated by the "Lights on Vehicles Act 1907." The horse-drawn conveyance must carry a lamp showing a white light visible in front at a "reasonable distance." There is no obligation to show any sort of light to the rear, save in the case of a vehicle with a load projecting more than six feet to the rear, when it must show a red light behind. Hand-carts and droves of cattle or flocks of sheep when being driven on the roads at night need not show any kind of light at all. Cyclists are once again exempt from the necessity of displaying the rear red light.

"TWENTY."

Certainly this reversion to the archaic regulations of before the war will not tend to make the roads any safer for traffic during the hours of darkness, and it does seem that it would have been better policy and wiser to maintain the war regulations until the control of highway traffic is taken over by the Ministry of Transport, which will doubtless frame its own rules. It will be vastly more difficult to re-institute restrictions than it would have been to keep them on for a further short period.

BESIDE THE ARC DE TRIOMPHE: A NAPIER CAR.

The Arc de Triomphe, in Paris, was the conception of Napoleon. In the centre can be seen the chains which for the first time since 1871 were opened for the recent Peace celebrations.—[Photograph by Campbell-Gray.]

Profiteering in Cars.

It seems to me the time is rapidly arriving when the British motor manufacturer must take action against the car profiteer, if he does not want to see both his business

and his reputation lost beyond recall. At the present time it is utterly impossible to get delivery of most makes of cars which have reached the actual production stage without paying an enormous premium—often as high as 30 per cent. I know that some makers attempt to deal with the evil by stipulating that a new

car shall not be sold above its list price, but the way round that pro-vision is quite easy. All that is necessary is that the car shall be driven a couple of hundred miles or so, and it then figures as "second-hand." I know it is difficult to devise a remedy for this sort of thing, but the S.M.M.T. has been quite successful in stopping the exhibition of cars under its bond; and it seems to me that the same might be done in the case of prices. If a car were sold on the absolute undertaking, under a penalty, that it should not be resold at a higher price than that listed by the makers, plus possibly a reasonable sum for the addition of any accessories, I think the plan would work. To make it effective the makers would, of course, have to take some amount of trouble in following up cases of profiteering; but I imagine that a very few successful cases in which damages were given against the profiteer would serve as a warning to others, and we should get back to clean, straight trading again. Although the manufacturer has neither lot nor part in the profiteering game, the fact that his products figure in the gross inflation of prices has a very unfavourable reaction on his business, and the wouldbe purchaser is scared off the make because of the anticipation that he will be asked an outrageous price. Often he will argue that he will do better to go in for a less known mark which is possibly not so subject to market rigging of a most undesirable

character. However the thing is to Le cone, it seems quite clear that the manufacturing trade generally will have to take action. Prices are quite high enough in consequence of the inordinate cost of materials and the demands of labour, so that the game of profiteering



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which is going on i causing a feeling of intense resentment among legitimate purchasers, and the effect on motoring is bound to be very adverse in the long run. The pre-ent



AN EASY STARTING DEVICE THE CLEAR AUXILIARY TO THE LEW THE A

Although the "Fig. 1" gives to be a simple priming device, it is seen than more than the property of the prope

period of apparent prosperity and its glut of money will not last for ever, and when it is ended, those who are now sowing the wind will inevitably reap the whirlwind.

The Road Board and the Highways.

To those who have regarded the Road Board as a more or less moribund body, pending the establishment of the new Ministry of Transport, it will doubtless come as a surprise to know that the funds which were diverted from its collers during the war have now been restored, and that a number of grants-in-aid have already been made to various local authorities for the purpose of road

restoration and improvement. There are no figures available to show exactly how much has been allocated since the Board's restoration to activity, but it is not uninteresting to note that the total sum allotted by it to various authorities since its foundation to July 31st last is £9,100,000. The county of Essex has been the greatest drain on the Board's resources, with grants totalling £341,000, Lancashire being close up with a total of £300,000. Yorkshire has not done badly, with £381,000 divided among its three Ridings.

A New Highway
Periodical.

The average periodical devoted to motoring, while it is of absorbing interest to those with technical know-

ledge, necessarily falls short in what may be described as a general appeal to the user of the King's highway. There has just been published the first issue of Out and Away, of which the best description is that it is—well, different It would not be fair to index its contents, so to say, but I must say that I have been right through it and have not found a dull page. There is an article by G. K. Chesterton, called "The End of the Roman Road,"

which is one of the best pieces of work even that genius in word-painting has ever risen to. Heath Robinson centributes a series of drawings which are—just Heath Robinson; while "Mr. Pepys Gees A Motoring is one of the funniest parodies of the famous Diary I have ever read. Out and Away costs half-a-crown, and is well worth the money.

Items of Interest. A certain number of Model oo Overland cars are now arriving from America. Government restrictions do not permit of all orders being filled, but they will be dealt with in rotation. The price, delivered in London, is £475. Interested readers are advised without delay to see the Overland dealer in their locality about future deliveries. The new "90" is on view at Overland Ilouse, 151-153, Great Portland Street. W.I., and is exciting much interest.

His Majesty the King has again honoured the Olympia Motor Show by his patronage. W. W.

The Reunion Club, which has just been founded, will meet a very special Peace need. It is designed to provide for the comfort and convenience of officers—past and present—of his Majesty's forces who are obliged to be in town for study or business for any considerable time. It sets out to achieve home-like surroundings at as moderate a rate as present conditions of food and labour prices allow; and the kitchen staff is to be managed by ex-Sergeant-Major J. C. Garton, who has had experiences of Rest Clubs and messes in Arras, Bapaume, and Cambrai. The Vice-Presidents of the Reunion Club are Viscount Templetown, the Earl of Clarendon, Sir Ernest Wild, K.C., M.P., K.B.E., Sir E. Denison Ross, C.I.E., K.B.E., and Brigadier-General H. Page-Croft, M.P., C.M.G.; and the club premises are at 87, Queen's Gate, S.W. Special arrangements are made for American officers resident in this country. All information can be obtained on application to the Hon. Sec., Executive Committee, at the club.



SEATED IN HIS NEW FIAT: MR. TOM BURKE, THE CELEBRATED TENOR.

Mr. Tom Burke, the well-known tenor, has just purchased a new Fiat car from the Grahame-White Company.—[Photograph by Scott Orr.]

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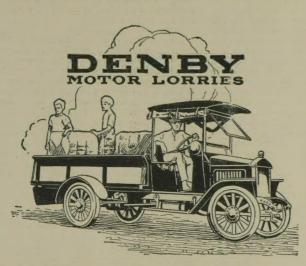
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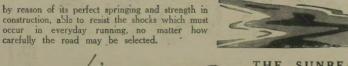
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# THE JOHN PIERPONT MORGAN GIFT TO THE NATION: STAINED GLASS.

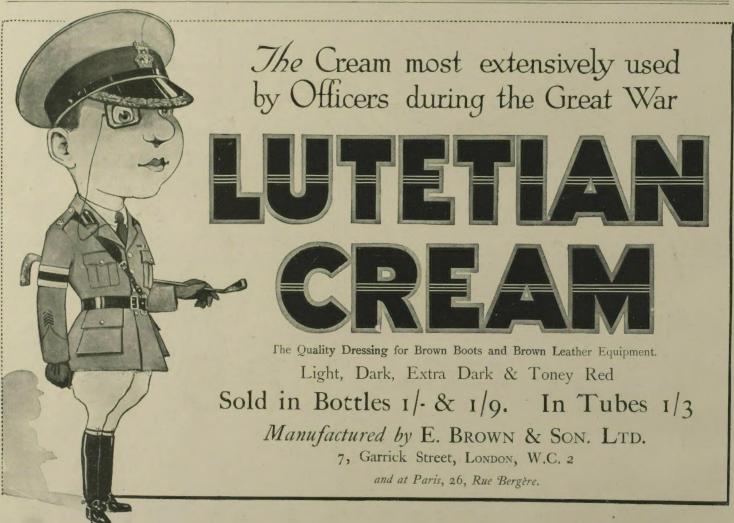
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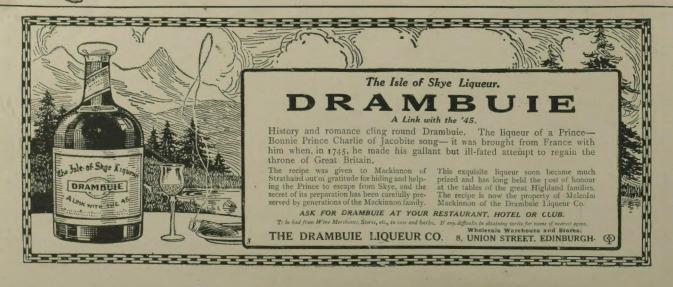
A COLLECTION of stained glass is now on view at the Victoria and Albert Museum. It is the gift of the present Mr. J. Pierpont Morgan, and not, as has been stated in some papers, a bequest from his deceased father. The collection is a most important one, and in 1909, when it came to the Museum on loan, many of us felt a pang when we thought of the day when it would be taken away. Happily, that day has not come; and the collection now belongs to the nation.

Coming at this time, when industrial unrest sets our minds upside down, the sight of these pieces of exquisite craftsmanship gives a calm moment—a reflection of a period, no doubt, not devoid of its troubles, but, nevertheless, serene and dignified. And when we compare the works exhibited in another department of the Museum of modern craftsmen, intended for war memorials, one wonders why the vigour and strength which we have displayed in these five years does not find expression in our crafts. The gems of the Morgan Collection are a little series of four panels from Troyes Cathedral. These panels are of

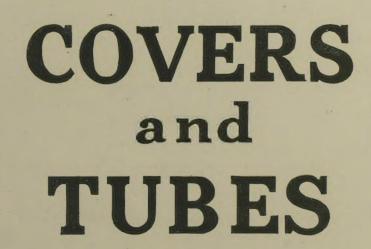
the thirteenth century. They represent the Temptation in the Wilderness, the Temptation on the Pinnacle, the Feeding of the Five Thousand, and a scene from the Life of St. Nicholas. The Temptation panels are the only existing examples of this subject treated in stained glass. They are simple, the drawing is direct, every line has its value, and the colour-schemes are most beautiful. The blue background to Our Lord and the red background to the devil in each case make a striking contrast in the composition. The devil is strong and attractive, aggressive and wily-looking, with his yellow head, blue horns, brilliant green body, and blue wings. The head of our Lord is most beautiful and expressive, and His attitude humble and serene. The craftsman here knew well how to express with sharp contrast good and evil. In the Feeding the Five Thousand panel, the dignity of Our Lord is represented in a most masterly manner, and the multitude of just nice everyday people tenderly treated. Some of the heads on the left are modern. The composition, colour, and drawing of the scene from the Life of St. Nicholas—also from Troyes Cathedral and of the thirteenth century-create an extraordinarily varied piece of delightful colour. These four panels are painted in a direct manner, never a line too many. There is very slight use of the "Matt." The eyes and features are drawn in the convention best suited to "carry" at a long distance. The remarkable thing about these panels is the variety of colouring in so small a space with such simple means.

Another panel of at present doubtful origin is of a crowned lady with a beautiful green tunic, and the inscription, "Domina Agnes Uxor Sua" (Lady Agnes, his wife), is most interesting. The subject is probably Agnes, wife of Duke Otto II., and, perhaps, from a Cistercian Abbey in Bavaria. Mr. Rackham, of the Ceramic Section of the Museum, has collected an interesting amount of evidence in support of this. It is a lovely panel, and to many, perhaps, is the cream of the collection. The largest window on exhibition here is the poorest from a technical point of view, although the cleverest. It is a Crucifixion subject from Altenberg Abbey, sixteenth century. The composition, the drawing of the figures, and the treatment of the painting and textures are clever; but just this very cleverness is its own undoing, and proves that what one objects to is the sacrifice of the essentials of the craft for cleverness overcoming their limitations, whether in old work or modern. The treatment is too pictorial for glass—and, indeed, there is a curious feeling of modernity in the whole window. The decadence of the work of the sixteenth century is perpetuated to-day, the craftsmen then, as now,





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being carried away by their dexterity in making glass look like something else. And this point of breaking loose from the restrictions of the craft is most strikingly illustrated in the treatment of the heads of the Magi in an Adoration subject, here exhibited from the design by the Master of the Holy Kindred, 1510, and the Raphaelesque painting of those of the Emperor Constantine and St. Helena, painted only thirty years later and exhibited close by. But in the St. Michael, also in this collection, one sees a most beautiful feathery effect obtained in the wings, which are in no way realistic, by the most legitimate means—that is, scratching out lines in the "Matt," and then staining the whole. There are many examples of Swiss enamel painting in this collection, and to those interested in this branch of the craft a visit is well paid. Some small circular coats-of-arms in grisaille are worth looking at from the memorial point of view, and will, no doubt, give many hints to those wanting small domestic reminders of lost dear ones. The illustration of a coat supported by two angels is a beautiful example of the domestic enamelled work of the sixteenth century.

After spending half-an-hour looking at these lovely examples of the most beautiful of all the crafts, one deplores the depravity into which it has sunk in modern times, and cannot repeat too often the necessity for the modern craftsmen to reapply the best of the old methods in a new direction. One of the chief things that the early craftsman bore in mind was that a window is to let God's light in and not to shut it out. We should feel very keenly with pride and joy this gracious gift of Mr. John Pierpont Morgan.

STANLEY NORTH.

#### THE PLAYHOUSES.

"THE FOLLIES." AT THE STRAND.

T always seemed a shame that so delightful an institution as the Follies should cease to provide entertainment for London with the death of its founder, unique comedian and inspiring leader as was Mr. Pelissier; and there were the best of reasons for its revival if that could be accomplished. A second Pelissier, of course, who should possess, in addition to his own humour and his power of stimulating that of his colleagues, the knack of supplying them with some of their happiest turns, was not likely to be found but Mr. Rolls has done his best at his series of Strand matinées. He has secured two members of the old company to carry on its traditions in Mr. Dan Everard and Miss Dollis Brooke. He has engaged a humourist with something of the Pelissier manner and appearance in Mr. Ben Lawes, and he has relied to no small extent on the original repertory There are the elements of sound policy in such a start, and the new recruits he has enlisted include capable singers and actresses such as Miss Joan Vivian Rees and Miss Agnes Croxton, a capital mimic in the person of Mr. Arthur Margotson, and a vivacious substitute for Mr. Lewis Sydney in Mr. Rex London. These are all to the good, and though some of the old matter—thus the beverage quartets and the skit on the former style of music-hall programme-proves vastly superior to some of the novelties still the fun provoked at the expense of the Russian Ballet is going to tell; and the burlesque of "Chu Chin Chow millionth performance, with the robber chief attenuated by good fortune, the camel grown feeble and

chorus and members of the orchestra become greybearded, will set all London laughing.

"THE ROTTERS," REVIVED AT THE KINGSWAY.

Mr. Maltby's satire of and on "The Rotters" hardly secured, perhaps, quite the indulgence it deserved at the Garrick during the war, because it was played somewhat more as a comedy than as an extravaganza. Audience and critics somehow had time to notice what a graceless set of types the playwright had assembled in his highly coloured picture of a would-be respectable provincial family, and so it missed being quite as popular as it might have been. Yet the piece had always plenty of good lines and had only to be given as tearing farce to proceed, as it were, by the force of its own impetus. Certainly it goes with a rush now, at the Kingsway, where a touring company, reinforced by Mr. Cecil Humphreys, prove that there is plenty of good talent outside London.

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